DRAFT
Environmental Assessment and FONSI for Implementation of NOAA Fisheries' Community-Based Restoration Program

Prepared by
NOAA Restoration Center
Office of Habitat Conservation
NOAA Fisheries

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EXECUTIVE SUMMARY

This Environmental Assessment (EA) addresses the National Environmental Policy Act (NEPA) requirements for the implementation of the NOAA Fisheries' Community-Based Restoration Program (CRP) of the Office of Habitat Conservation.

NOAA Fisheries began a new Community-Based Restoration Program in 1996 to encourage local efforts to restore fish habitats. The CRP's objective is to bring together citizen groups, public and non-profit organizations, industry, corporations and businesses, youth conservation corps, students, landowners, and local government, state, and Federal agencies to implement habitat restoration projects to benefit living marine and anadromous fish resources. Partnerships are sought at the national, regional and local levels to contribute funding, land, technical assistance, workforce support or other in-kind services to allow citizens to participate in the improvement of locally important living marine resources. Projects are successful because they have significant community support and depend upon citizens' "hands-on" involvement. Projects have the additional benefit of heightening awareness, strengthening stewardship and promoting a community conservation ethic.

The purpose of this EA is to address NEPA compliance at the program level, as opposed to the specific project level. Three alternatives were considered during the preparation of the new program guidance (Fed. Reg., Vol. 65 (62), Mar 30, 2000, p. 16890). The Preferred Alternative will implement habitat restoration activities in all coastal habitats to benefit living marine resources, including anadromous fish species. Implementation of restoration activities under this alternative may have a very localized and temporary adverse impact over the short-term, but will provide beneficial habitat in the long-term. Under the CRP, these restoration activities do not individually or cumulatively have significant adverse impacts on the human environment, and many projects may be eligible for categorical exclusion under NOAA NEPA Guidance. The No Action Alternative would discontinue the Community-Based Restoration Program and eliminate any benefits the program provides to living marine resources through habitat restoration. The Third Alternative considered would solely implement restoration of salt marshes and focus efforts on addressing a single type of habitat loss. Although CRP funding and efforts would be focused on salt marsh restoration, other coastal and riverine habitats would not be restored through the CRP, even if those habitat types may have a higher priority for restoration.

1.0 NEED AND PURPOSE

1.1 Need

Habitat loss and degradation are major, long-term threats to the sustainability of the Nation's fishery resources. Approximately half of the original 11.7 million acres of coastal wetlands in the lower 48 states were lost during the period from 1780 to 1978 (NOAA 2001). Over 75 percent of commercial fisheries and 80-90 percent of recreational marine and anadromous fishes depend on estuarine, coastal and riverine habitats for all or part of their life-cycles (National Safety Council 1998). Viable coastal and estuarine habitats are important to maintaining healthy fish stocks. In addition to good substrate quality, good water quality in these areas is needed to support healthy fish stocks. Protecting existing, undamaged habitat is a priority and should be combined with coastal and riverine habitat restoration to enlarge and enhance the functionality of degraded habitat (Murphy 1995). Restored coastal and riverine habitat that supports anadromous fish will help rebuild fisheries stocks and recover certain threatened or endangered species. Restoring these habitats will help ensure that valuable resources will be available to future generations of Americans.

1.2 Purpose

NOAA Fisheries began a new Community-Based Restoration Program (CRP) in 1996 to encourage local efforts to restore fish habitats. Since that time, NOAA has secured funding for 179 small-scale habitat restoration projects around the U.S. coastline. In addition to performing on-the-ground restoration, the majority of these projects possess an outreach or education component to develop natural resource stewardship. The CRP's objective is to bring together citizen groups, public and non-profit organizations, industry, corporations and businesses, youth conservation corps, students, landowners, and local government, state, and Federal agencies to implement habitat restoration projects to benefit living marine and anadromous fish resources. Partnerships are sought at the national, regional and local levels to contribute funding, land, technical assistance, workforce support or other in-kind services to allow citizens to participate in the improvement of locally important living marine resources. A monitoring and tracking database, and GIS are being developed that will support regional, watershed-based activities, provide information on project status, and give bases from which to assess the CRP. This tracking system will also help to ensure compliance with implementation requirements.

NOAA Fisheries recognizes the significant role that communities play in habitat restoration and protection and acknowledges that habitat restoration is often best supported and implemented at a community level. These project types are successful because they have significant community support and depend upon citizens' "hands-on" involvement. NOAA Fisheries is interested in strengthening the development and implementation of technically-sound restoration projects. NOAA Fisheries anticipates maintaining the current focus of the CRP by continuing to form strong partnerships to fund grassroots activities that restore habitat and develop stewardship and a conservation ethic for the Nation's living marine resources.

2.0 BACKGROUND

2.1 Eligibility

Any state, local or tribal government, regional governmental body, public or private agency or organization may sponsor a project for funding consideration. The sponsoring group or the organization may be a recipient of the funds or may recommend that a Federal agency receive funds for implementation. However, in the latter situation, NOAA Fisheries would enter into a Memorandum of Agreement between NOAA Fisheries, the sponsor and the Federal agency. Although Federal and state agencies and municipalities are eligible to be the recipients of funding, they are encouraged to work in partnership with community groups. Successful applicants propose projects that demonstrate significant, direct benefits to living marine and anadromous fish resources within supportive, involved communities. Proponents who seek funding under the CRP are not eligible to seek funding for the same project under other Restoration Center (RC) programs. The CRP, which is authorized under the Fish and Wildlife Coordination Act, precludes individuals from applying for or receiving funds from other RC programs.

2.2 Eligible Restoration Activities

NOAA Fisheries will fund projects that will result in on-the-ground restoration that benefits living marine resources, including anadromous fish species. Habitat restoration is defined here as activities that directly result in the reestablishment or re-creation of stable, productive marine, estuarine, lagoon, or coastal river ecological systems. Restoration may include, but is not limited to: improvement of coastal wetland tidal exchange or reestablishment of historic hydrology; dam or berm removal; fish passageway improvements; natural or artificial reef/substrate/habitat creation; establishment or repair of riparian buffer zones and improvement of freshwater habitats that support anadromous fishes; planting of native coastal wetland and submerged aquatic vegetation (SAV); and improvements to feeding, shade or refuge, spawning and rearing areas that are essential to fisheries.

Projects will demonstrate anticipated benefits to habitats such as salt marshes, seagrass beds, kelp forests, oyster reefs, coral reefs, mangrove forests, and riparian habitat near rivers, streams, and creeks used by anadromous fish. Projects will be adequately monitored for their intended purpose throughout the useful life of the project.

Projects will involve significant community support through an education and volunteer component tied to the restoration activities. Implementation of on-the-ground habitat restoration projects involves community outreach and post-restoration monitoring to assess project success, and may involve limited pre-implementation activities such as engineering and design and short-term baseline studies. Projects emphasizing only research, outreach, monitoring or coordination will be discouraged, as will funding requests primarily for administration, salaries, travel, and overhead expenses.

Although NOAA Fisheries recognizes that water quality issues may impact habitat restoration efforts, the CRP is intended to fund physical habitat restoration projects rather than direct water quality improvement measures, such as wastewater treatment plant upgrades or combined sewer outfall corrections. The following restoration projects will not be eligible for funding: (1) Activities that constitute legally-required mitigation for the adverse effects of an activity regulated or otherwise governed by state or Federal law; (2) activities that constitute restoration for natural resource damages under Federal or state law, and (3) activities that are required by a separate consent decree, court order, statute or regulation. Funds from this program may be used to enhance restoration activities beyond the scope legally required under the activities described above.

3.0 ALTERNATIVES

3.1 No Action Alternative

The No Action Alternative required by NEPA would be the discontinuance of the Community-Based Restoration Program. Under the No Action Alternative, there would be no new benefits to living marine resource habitats from this program. This alternative fails to support the objectives of restoring living marine and anadromous fish resources, enhancing community and citizen involvement in marine resource conservation, and educating the public about the importance of these resources.

3.2 Preferred Alternative – Implement Restoration for All Habitats

The Preferred Alternative is to implement habitat restoration activities under the Community-Based Restoration Program for all habitats that benefit living marine resources, including those that benefit anadromous fish species. These activities include fish ladder construction, as well as restoration of the following: riparian habitats, anadromous fish habitats, marshes, submerged aquatic vegetation (SAV) beds, oyster reefs, coral reefs, shorelines, kelp forest, and mangrove forests.

Under the CRP, these restoration activities do not individually or cumulatively have significant adverse impacts on the human environment, and many projects may be eligible for categorical exclusion under NOAA NEPA Guidance. Examples of activities likely to be eligible for categorical exclusion include: re-vegetation of habitats; restoration of submerged, riparian, intertidal, or wetland substrates; and replacement or restoration of shellfish beds through transplanting or restocking (NAO 216-6.03(b)(2)). All restoration activities will comply with Federal statutory and regulatory procedures, as well as state requirements, prior to implementation. Records of Federal and state permits/consultations will be maintained either with RC partners or in-house if the RC issued funds for projects. The CRP Program Manager will ensure that QA/QC audits will be undertaken on each project to ensure compliance with all requirements identified in this EA and the Federal Register Notice (see Appendix E). The Preferred Alternative involves implementing habitat restoration that may have a localized, temporary adverse impact over the short-term, but will provide beneficial habitat in the long-term.

3.2 Third Alternative – Implement Restoration of Salt Marsh Habitats

The Third Alternative involves restoration on a narrow scale, to restore only a single habitat type: salt marshes. The CRP would implement a few specific projects in partnership with other organizations and direct funds toward restoring only salt marshes that directly benefit fisheries. This alternative involves larger-scale, more involved projects, incorporating significant engineering design and coordination. This alternative would be more complex, take longer to accomplish, and would be more costly to implement. Usually, the use of heavy machinery or equipment is involved, as significant changes in topography and hydrology are required. This process is less likely to engage the public in stewardship of the resource, and would limit opportunities for an educational component while the construction and other project aspects are being performed (for example, during culvert replacement to increase tidal flushing). Less citizen involvement would likely result throughout the process and would therefore achieve less leverage of local resources and community support and stewardship over the long-term.

These restoration activities may temporarily impact living marine resource habitat in the short-term, but will provide beneficial habitat in the long-term. These restoration activities would not individually or cumulatively have significant adverse impacts on the human environment.

4.0 AFFECTED ENVIRONMENT

4.1 Physical Environment

Because of the large variability in the types of species comprising living marine resources, a wide range of coastal regions and riparian systems along streams and rivers that support anadromous fish must be considered as habitat for marine species. Under the CRP, these regions include the coastal continental United States, Alaska, Hawaii, and U. S. territories. Most CRP restoration occurs in urban areas impacted by human development and pollution as well as in remote rural locations. Most projects occur in small-order sloping riparian streams and creeks, estuaries, and bays. Projects are small-scale and are generally less than 15 acres or 4 stream-miles. The majority of projects benefit coastal habitats, areas that are both very productive and very vulnerable. Since over 50 percent of the country's population lives in coastal areas, the effects of human development and pollution are most evident in coastal marine ecosystems (NOAA 1998).

Riparian areas are commonly characterized by bottomland hardwood and floodplain forests in the East and as bosque or streambank vegetation in the West (Mitsch and Gosselink 1993). Riparian environments are maintained by high water tables and experience seasonal or periodic flooding. Riparian zones contain or adjoin riverine wetlands and share many functions including water storage, sediment retention, nutrient and contaminant removal as well as habitat functions.

Marsh habitats, too, vary with coastal geographic location. The steep, high-energy shores of the Pacific Coast generally support smaller marsh areas (Zedler 1992) than other coasts. Salt marshes on the Gulf Coast sometimes grow right next to the seashore but on the Atlantic and Pacific Coasts, they usually grow on sediment deposits behind protective barrier islands. All coastal marsh habitats are influenced by daily tides.

Estuaries also vary in character in and along different coastlines. Estuaries in the Pacific Northwest include examples of all of the various estuarine classes: drowned river valleys, fjords, bar-built, and tectonic (Pritchard 1967; Russell 1967). These estuarine types differ dramatically from one another in habitat structure: from broad, deltaic flats with monotypic stands of emergent marsh or expansive, un-vegetated flats to mainstem channels cutting through bedrock beach terraces. Unlike most East coast estuaries, expansive areas of emergent marsh are not characteristic of the broad estuaries of the West coast, and more "fringing" marshes are found here (Simenstad and Thom 1992).

Many restoration projects in West Coast estuaries are small projects that take place along very urbanized coastline. Some of these urbanized estuaries have lost over 70% of their littoral wetland habitats (Simenstad and Thom 1992).

Submerged grasses or seagrasses differ from most other wetland plants in that they are almost exclusively subtidal, reside mainly in marine salinities and utilize the water column for support. Seagrasses occur across a wide depth range, from rocky intertidal habitats to depths of 40 meters, and for some species, broad latitudinal ranges. *Zostera marina* (eelgrass), for example, extends from near the Arctic circle on both coasts of the U.S. to North Carolina on the East Coast and to the Gulf of California on the West Coast (Fonseca 1992).

Oyster reefs may be found in intertidal and subtidal areas, where suitable substrate and adequate larval supply exist, along with appropriate (brackish to estuarine) salinity levels and water circulation. Oyster beds historically were found along the East and Gulf Coasts, but have been greatly reduced in occurrence as a result of anthropogenic impacts in the past 200 years (Kennedy and Sanford 1995).

Shore environments are widely varying in nature, from low-energy sheltered environments to more exposed coastline, subjected to high-energy wave and tidal action. Low-energy shorelines may be characterized by finer-grained, muddier sediments, which tend to accrete in depositional zones. Sandy beaches, characterized by sand, coarse sand and cobbles, and that have few fine-grained silts and clays, are formed by waves and tides sufficient to winnow away the finer particles. The sand also typically "migrates" off- and onshore seasonally.

Coral reefs are wave resistant structures made of calcium carbonate secreted by, and harboring plants and animals in shallow tropical seas. While most of the reef environment is depositional, the seaward growing portion of the reef is essential for the survival and maintenance of the rest of the reef system (Wiens 1962; Guilcher 1987). Coral reefs predominate in many tropical benthic environments because of their ability to grow or maintain structures in the face of heavy or prevailing wave action. Also, coral reefs grow in oceanic waters that are low in nutrients. Corals contain symbiotic algae (zooxanthellae), which live in the coral tissues and produce food and take up nutrients excreted by the coral animal (Maragos 1992).

Kelp "forests" are subtidal marine communities dominated by large brown algae (kelps) that form floating canopies on the surface of the sea. Kelp forest communities are found from sea level to as deep as 60 meters, depending on light penetration (Foster and Schiel 1985). The major species that form floating surface canopies along the West Coast are *Macrocystis pyrifera* and *Nereocystis luetkeana*, off California, and *Alaria fistulosa* in Alaska (Druel 1970). A kelp canopy can reduce surface light by over 90%, thus affecting species composition and growth rates in the understory (Reed and Foster 1984). Severe water motion can modify kelp communities by removing the kelp plants (Cowen *et al*. 1982, Dayton and Tegner 1984a), but in milder conditions the floating canopy can act as an offshore damper that reduces wave forces

(Schiel and Foster 1992). Kelps with floating canopies do not occur along the East Coast, although plants can obtain heights of over 6 meters above the bottom (R. Vadas, pers. comm. to Shiel and Foster 1992).

Mangroves are woody plant communities that develop in sheltered tropical and subtropical coastal estuarine environments. Mangroves are adapted to survive in very saline, waterlogged, reduced soils that are often poorly consolidated and subject to rapid change. Three species comprise the major elements of mangrove communities in Florida, Puerto Rico, and the U.S. Virgin Islands—red, black, and white mangroves. Red mangroves usually are found in fringe or riverine environments characterized by active water flow and a high degree of flushing. The other two species tend to dominate in stagnant environments where water flows are reduced and often seasonal (Cintron-Molero 1992).

4.2 Biological Environment

Living marine resources utilize a wide variety of coastal biological habitats that are restored under the CRP, including submerged aquatic vegetation (SAV) beds, marshes, oyster reefs, kelp forests, riparian areas, and mangroves. These various habitats are targeted for restoration because they have suffered considerable degradation and loss of area in recent decades due to dredging and filling, pollution, construction, and erosion.

NOAA, as the federal trustee agency for these natural resources, is responsible for their conservation and restoration. The CRP restoration projects will benefit these resources.

Riparian Areas

The riparian zone is a characteristic association of substrate, flora, and fauna within the 100-year floodplain of a stream or, if a floodplain is absent, a zone hydrologically influenced by a stream or river (Hunt 1988). Riparian areas contain or adjoin riverine wetlands and share with them many functions including surface and subsurface water storage, sediment retention, nutrient and contaminant removal, and maintenance of habitat for plants and animals. Riparian ecosystems have distinctive vegetation and soils, and are characterized by the combination of species diversity, density, and productivity. Continuous interactions occur between riparian, aquatic, and upland ecosystems through exchanges of energy, nutrients, and species (NRC 1995). Selective removal of small dams in riparian areas allows for much improved upstream migration of anadromous species, which facilitates spawning activity and helps to increase fish populations.

Marshes

Marsh ecosystems, like all wetlands, are a function of hydrology. Salt marshes grow in the intertidal zone from about mean sea level to the highest level of spring tides. The marshes are strongly influenced by tidal flushing and stream flow, which affect the inundation and salinity regimes of salt marsh soils. Sand- and mudflats occur at extreme low water, whereas salt marsh vegetation develops where the soils are more exposed to the air than inundated by tides, usually above mean sea level. *Spartina* spp. (cordgrass) typically dominate the lower marsh. Salt marshes provide important habitat for invertebrates (such as crabs and bivalves) and fishes. Vital nutrient exchange takes place in salt marshes, as detritus and algae in the marshes are consumed and nutrients excreted by birds, fish, and shellfish are recycled by the flora (Zedler 1992).

Submerged Aquatic Vegetation (SAV) Beds

Seagrasses supply many habitat functions, including: (1) support of large numbers of epiphytic organisms; (2) damping of waves and slowing of currents which enhances sediment stability and increases the accumulation of organic and inorganic material; (3) binding by roots of sediments, thus reducing erosion and preserving sediment microflora; and, (4) roots and leaves provide horizontal and vertical complexity to habitat, which, together with abundant and varied food sources, support densities of fauna generally exceeding those in unvegetated habitats (Wood *et. al*. 1969; Thayer *et. al*. 1984).

Shellfish/Artificial Reefs

Oyster beds are built by the cementing together of oyster shells, with additional hard substrate provided by associates such as other bivalves, barnacles, and calcareous tube builders such as some polychaetes (Kennedy and Sanford 1995). Larvae of these invertebrates settle seasonally on this substrate. Eventually, a mound forms and grows vertically and laterally as oysters accumulate and shell is scattered in the bed's vicinity (Bahr and Lanier 1981). Oyster reefs can vary in morphology, influenced by local effects (Kennedy and Sanford 1995). Oyster beds have in the past been an important food source as well as providing shore protection (hard substrate), water clarification, and habitat for other invertebrates.

Shorelines

In lower-energy shoreline environments, there may be lower population densities of a given species, but high diversity. Along higher-energy shorelines, seagrasses and certain benthic organisms, such as mollusks and worms, may predominate because they can withstand the turbulence of such an intertidal zone. Such environments may exhibit low species diversity, but high population densities of those species that can tolerate the high-energy conditions (for example, some invertebrates). Sand dunes formed in these areas provide habitat for seabirds and sea turtles, including various species of endangered sea turtles which rely on beaches for nesting habitat.

Coral Reefs

Coral reefs have been called the "rainforests of the sea" (US Coral Reef Task Force 2000) because of their high level of biodiversity and productivity, providing habitat for thousands of species of fish and shellfish and hundreds of species of corals, algae, sponges, echinoderms, and many other groups of organisms. Coral reef systems provide food, shelter, breeding, and nursery areas for many reef and non-reef organisms. Coral reefs are also linked to mangroves and seagrasses where these systems occur in close proximity to one another (Maragos 1992). A number of rare or endangered species inhabit or use coral reef environments.

Kelp Forests

Kelp forests are highly productive and also create a three-dimensional aspect to the nearshore environment, providing habitat and food for hundreds of other species of plants (algae) and animals. Kelp forests on hard reef areas can harbor lush understory layers of red and brown algae, as well as mobile and encrusting invertebrates. Throughout the kelp forest there are hundreds of species of fish, and there are vertical layers of vegetation that vary with depth (Schiel and Foster 1992). Food is exported from kelp forests to associated communities such as sandy beaches and the deep sea.

Mangrove Forests

Mangrove communities, like salt marshes, facilitate much nutrient cycling, trapping nutrient-rich sediments and maintaining high rates of organic matter fixation (Cintron-Molero 1992). Mangroves also provide important shelter for larval fish and crustaceans, and contribute detritus and dissolved organic carbon to estuarine food webs (Heald 1969; Odum 1971; Twilley 1982). Mangrove ecosystems are often coupled to other systems such as seagrass beds and coral reefs, supporting migratory species of fish, shrimp, and birds. Mangrove communities may also support large resident and migratory populations of mammals, reptiles, and other animals (Cintron-Molero 1992).

4.2.1 Essential Fish Habitat

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), essential fish habitat (EFH) must be identified and preserved. Fishery Management Plans (FMPs) must include a provision to describe and identify EFH for the more than 700 species managed under 41 FMPs. Federal agencies are required to consult with NOAA Fisheries on all actions that may adversely affect EFH. CRP restoration projects will benefit habitat for anadromous and groundfish species, coral reef fishes, and benthic invertebrates. To comply with EFH requirements, we will seek either a programmatic consultation and determination of no significant effect on the human environment, or we will ensure consultation will occur through the permitting process for any construction projects.

Restoration projects will be scheduled to avoid work during critical fish windows (e.g., spawning and migration periods) for managed fish species. Possible impacts to EFH from restoration projects include localized non-point source pollution, such as influx of sediment or nutrients. All appropriate EFH Conservation Measures as identified in the FMPs will be incorporated into each project to minimize adverse impacts to EFH, for example, use of vegetated buffer zones and erosion control structures. If the project plans cannot fully incorporate all impact avoidance measures or if new information becomes available that affects the basis for conservation measures, then supplemental consultation will be undertaken prior to project implementation. Any impacts to EFH will be very localized, minor, and short-term in nature.

The following sections address EFH for managed species that may be encountered during community-based restoration projects on the Pacific Coast, Gulf of Alaska, Gulf of Mexico, U.S. Caribbean and Atlantic Coast. Table 1 lists the FMPs and species that have EFH designations and are likely to be encountered in a CRP project. Table 2 lists the FMPs and species unlikely to be found in a CRP project area.

Table 1. Thirty Fishery Management Plans (FMPs), species managed under each FMP, and the reasons for *inclusion* under the programmatic Environmental Assessment (EA).

Fishery Management Plan	Species managed under FMP	Reason for inclusion
Pacific Coast FMP for Groundfish	83 species/life stages: predominantly rockfish, sole & flounder	Species/life stages identified within the Estuarine Composite EFH and most likely to be found in CRP project areas
Pacific Coast FMP for Coastal Pelagic Species	4 finfish species/life stages: Pacific sardine, Pacific (chub) mackerel, northern anchovy, jack mackerel 1 invertebrate: market squid	Species/life stages found in estuaries or near river mouths, around kelp beds, off sandy beaches, and in nearshore waters
Pacific Coast FMP for Salmon	3 species/life stages: chinook, coho, pink	Species/life stages found in estuary or near river mouths, riverine, and near-shore waters
North Pacific FMP for Groundfish of Gulf of Alaska	18 species/life stages: predominantly pollock, flounder, sole & rockfish	Species/life stages found in areas of gravel, rock, eelgrass and kelp in shallower waters, intertidal pools and beaches, and rivers with sand, gravel and cobble bottoms
North Pacific FMP for Salmon Fisheries in EEZ off the Coast of Alaska	5 species/life stages: chinook, coho, pink, sockeye, chum	Freshwater EFH for salmon fisheries includes all streams, lakes, ponds, wetlands, and other water bodies currently or historically accessible to salmon Marine EFH for salmon fisheries includes all estuarine and marine areas utilized by salmon, extending from influence of tidewater and tidally submerged habitats to the limits of the U.S. EEZ
Gulf of Mexico FMP for Shrimp Fishery	3 species/life stages: brown shrimp, pink shrimp, white shrimp	Found in inshore waters and estuaries
Gulf of Mexico FMP for Red Drum Fishery	Red drum & its life stages	Found in coastal inlets, sounds, bays, seagrass beds, shallow estuarine rivers and mainland shorelines
Gulf of Mexico FMP for Reef Fish Fishery	11 species/life stages: including grouper, snapper & triggerfish	Found in shallow nearshore waters, mangroves, salt marshes, seagrass beds, coral reefs, algal mats
Gulf of Mexico FMP for Stone Crab Fishery	Stone crab & its life stages	Found in intertidal zone, seagrass beds, rocky or soft bottoms
Gulf of Mexico FMP for Spiny Lobster Fishery	Spiny lobster & its life stages	Found in shallow subtidal bottoms, seagrass beds, soft bottoms, coral reefs, and mangroves
Gulf of Mexico FMP for Coral and Coral Reefs Fishery	Coral and coral reefs & life stages	Some found in shallower waters CRP coral reef restoration projects
South Atlantic FMP for Shrimp Fishery	3 species/life stages: brown shrimp, pink shrimp, white shrimp	Found in inshore waters and estuaries

South Atlantic FMP for Red Drum Fishery	Red drum & its life stages	Found in coastal inlets, sounds, bays, seagrass beds, shallow estuarine rivers and mainland shorelines
South Atlantic FMP for Snapper Grouper Fishery	Approximately 57 species/life stages: including triggerfishes, grunts, snappers, sea basses & groupers	Found in estuaries, rivers, seagrass beds, mangroves, and coral reefs
South Atlantic FMP for Golden Crab	Golden crab & its life stages	Found on Continental Shelf and in Gulf Stream, coral reefs, pebbly or soft bottoms
South Atlantic FMP for Spiny Lobster Fishery	Spiny lobster & its life stages	Found in shallow subtidal bottoms, seagrass beds, soft bottoms, coral reefs, and mangroves
South Atlantic FMP for Coral, Coral Reefs, and Live/Hard Bottom Habitat Fishery	Coral and coral reefs & life stages	Some found in shallower waters CRP coral reef restoration projects
Mid-Atlantic FMP for Summer Flounder, Scup, and Black Sea Bass	Summer flounder, scup, and black sea bass & life stages	Found in shallow coastal and estuarine waters, mudflats, seagrass beds
Mid-Atlantic FMP for Bluefish	Bluefish & its life stages	Juveniles and adults found in estuarine and nearshore waters
Mid-Atlantic FMP for Atlantic Mackerel, Squid, and Butterfish	Long-finned squid & its life stages	Demersal eggs found attached to aquatic vegetation or rocks in shallower waters
Mid-Atlantic FMP for Atlantic Surfclam and Ocean Quahog	Surf clam & its life stages	Found from the beach out to approximately 65 m deep, vertically in substrate to 1 m depth
U.S. Caribbean FMP for Reef Fish	13 species/life stages: including grouper, snapper, yellowtail, grunt, butterflyfish, triggerfish, squirrelfish & tilefish	Found in shallow nearshore waters, mangroves, salt marshes, seagrass beds, coral reefs, algal mats
U.S. Caribbean FMP for Spiny Lobster	Spiny lobster & its life stages	Found in very shallow nearshore waters, algal mats, seagrass beds, mangroves, coral reefs
U.S. Caribbean FMP for Queen Conch	Queen conch & its life stages	Found in seagrass beds, algal mats, coral reefs, nearshore sandy areas
U.S. Caribbean FMP for Coral	Over 100 species/life stages of coral: including stony corals, sea fans & gorgonians Over 60 species/life stages of plants: including seagrasses & invertebrates	Some found in shallower waters CRP coral reef restoration projects
Northeast Multispecies FMP	Atlantic cod, haddock, ocean pout, American plaice, pollock, red hake, white hake, whiting, windowpane flounder, winter flounder, and yellowtail flounder & life stages	Found in bays, estuaries and some rivers
Northeast Proposed Atlantic Herring FMP	Atlantic herring & its life stages	Found in bays, estuaries and nearshore waters

Northeast FMP for Atlantic Salmon	Atlantic salmon & its life stages	Freshwater EFH for salmon fisheries includes all streams, lakes, ponds, wetlands, and other water bodies currently or historically accessible to salmon Marine EFH for salmon fisheries includes all estuarine and marine areas utilized by salmon, extending from influence of tidewater and tidally submerged habitats to the limits of the U.S. EEZ
Northeast FMP for Monkfish	2 species/life stages	Near-shore waters, bays, and estuaries
Northeast FMP for Atlantic Sea Scallops	Atlantic sea scallop & its life stages	Found in nearshore bays and estuaries

Table 2. Fourteen Fishery Management Plans (FMPs), species managed under each FMP, and the reasons for *exclusion* under the programmatic Environmental Assessment (EA).

Fishery Management Plan	Species managed under FMP	Reason for exclusion
Western Pacific FMP for Bottomfish and Seamount Groundfish Fisheries	22 species/life stages: including snappers, trevallys, groupers, emperors, sea basses, amberjacks, alfonsins, ratfishes, armorheads	Found on steep slopes of deepwater banks, depths approximately 35 m to 330 m
Western Pacific FMP for Pelagic Fisheries	Approximately 76 species/life stages: including mahimahis, wahoos, marlins, spearfishes, swordfishes, sailfishes, sharks, tunas, kawakawas, moonfishes, oilfishes, pomfrets	Found in near-surface waters far from shore, moving freely in the oceanic environment
Western Pacific FMP for Precious Corals Fisheries	12 species/life stages: pink corals, red corals, gold corals, bamboo corals, black corals	Deepwater corals found at depths between 350-1500 m Shallow water corals found at depths between 30-100 m
Western Pacific FMP for Crustacean Fisheries	Hawaiian spiny lobster & life stages Kona crab & life stages	Spiny lobster found at depths between 10-185 m Kona crab found at depths between 24-115 m
Pacific Coast FMP for Groundfish	Big skate, longnose skate, finescale codling, Pacific rattail, 47 species of rockfish, Pacific ocean perch, arrowtooth flounder, 7 species of sole & life stages	Found outside the Estuarine Composite EFH
North Pacific FMP for Groundfish of the Bering Sea and Aleutian Islands Area	Walleye pollock, Pacific cod, 5 species of sole, Greenland turbot, arrowtooth flounder, Alaska plaice, sablefish, Pacific ocean perch, 5 species of rockfish, Atka mackerel, squid, capelin, eulachon, sculpins, sharks, skates, octopus, sand lance, myctophids and bathylagids, sand fish, euphausiids, pholids and stichaeids, gonostomatids & life stages	Uncommon area for CRP projects – if projects are funded in Bering Sea and Aleutian Islands area, a separate EFH consultation will be conducted
North Pacific FMP for the King and Tanner Crab Fisheries in the Bering Sea/ Aleutian Islands	Red king crab, blue king crab, golden king crab, scarlet king crab, tanner crab, snow crab, grooved Tanner crab, triangle Tanner crab & life stages	Uncommon area for CRP projects – if projects are funded in Bering Sea and Aleutian Islands area, a separate EFH consultation will be conducted
North Pacific FMP for the Groundfish of Gulf of Alaska	Walleye pollock, Pacific cod, Dover sole, rex sole, flathead sole, sablefish, Pacific ocean perch, shortraker and rougheye rockfish, northern rockfish, thornyhead rockfish, skates, sharks, red squid, myctophids, bathylagids, euphausiids, gonostomatids & life stages	Found in deep pelagic and benthic waters along inner, middle, and outer continental shelf
North Pacific FMP for the Scallop Fisheries off Alaska	Alaskan weathervane scallops, Alaskan pink scallops, Alaskan spiny scallops, Alaskan rock scallops & life stages	Found in deep waters (40-200 m) characterized by strong currents along the continental shelf

Gulf of Mexico FMP for Coastal Migratory Pelagics	Mackerel, cobia, cero, dolphin, tunny & life stages	Found in deep pelagic waters
South Atlantic FMP for Golden Crab Fishery	Golden crab & its life stages	Occurs at depths greater than 300 m
South Atlantic FMP for Billfish	Atlantic blue and white marlin, west Atlantic sailfish and longbill spearfish & life stages	Found in deep pelagic waters
Mid-Atlantic FMP for Atlantic Mackerel, Squid, and Butterfish	Atlantic mackerel & its life stages Butterfish & its life stages Short-finned squid & its life stages	Found in deep pelagic waters over the continental shelf
Mid-Atlantic/Northeast FMP for Spiny Dogfish	Spiny dogfish & its life stages	Found in warm waters over the continental shelf, depths greater than 5 m

Pacific Coast FMPs for Groundfish, Coastal Pelagic Species, and Salmon

Community-based restoration projects off the coast of California, Oregon and Washington may be located within areas identified as EFH for species managed by the Pacific Fishery Management Council under Amendment 11 to the Pacific Coast Groundfish FMP (October, 1998). This Plan identifies 83 groundfish species and life stages, predominantly rockfish, sole, and flounder that may exist in CRP project areas. Other West Coast projects may possibly be located in areas identified as EFH for species managed under Amendment 8 to the Coastal Pelagic Species FMP. This Plan identifies four finfish species and one invertebrate species and life stages, including Pacific sardine, Pacific (chub) mackerel, northern anchovy, and jack mackerel, and the invertebrate, market squid, that may exist in CRP project areas. Under the Pacific Coast Salmon FMP, three species and life stages, specifically chinook, coho, and pink salmon, may exist in CRP project areas.

North Pacific FMP for Groundfish of the Gulf of Alaska and FMP for the Salmon Fisheries in the EEZ off the Coast of Alaska

Community-based restoration projects off the coast of Alaska may be located within areas identified as EFH for species managed by the North Pacific Fishery Management Council under Amendment 55 to the FMP for Groundfish in the Gulf of Alaska (June, 1998). This Plan identifies 18 groundfish species and life stages, predominantly pollock, flounder, sole, and rockfish that may exist in CRP project areas. Other projects off the coast of Alaska may be located in areas identified as EFH for species managed under Amendment 5 to the FMP for the Salmon Fisheries in the EEZ off the Coast of Alaska (June, 1998). This Plan identifies five species and life stages of salmon, including chinook, coho, pink, sockeye, and chum that may exist in CRP project areas.

Gulf of Mexico FMPs for Shrimp Fishery, Red Drum Fishery, Reef Fish Fishery, Stone Crab Fishery, Spiny Lobster Fishery, and Coral and Coral Reefs Fishery

Community-based restoration projects in the Gulf of Mexico may be located within areas identified as EFH for species managed by the Gulf of Mexico Fishery Management Council under a Generic Amendment for Addressing Essential Fish Habitat Requirements in several FMPs (October, 1998). The Shrimp FMP identifies three species and life stages, including brown shrimp, pink shrimp, and white shrimp, that may coincide with CRP project sites. Restoration projects in the Gulf of Mexico may be located within other areas identified as EFH for: red drum under the Red Drum FMP; 11 species and life stages of reef fish, including grouper, snapper, and triggerfish, under the Reef Fish FMP; stone crab under the Stone Crab FMP; spiny lobster under the Spiny Lobster FMP; and coral and coral reefs under the Coral and Coral Reefs FMP.

South Atlantic FMPs for Shrimp Fishery, Red Drum Fishery, Snapper Grouper Fishery, Golden Crab Fishery, Spiny Lobster Fishery, and Coral, Coral Reefs, and Live/Hard Bottom Habitat Fishery

Community-based restoration projects off the coasts of North Carolina, South Carolina, Georgia, and east Florida may be located within areas identified as EFH for species managed by the South Atlantic Fishery Management Council under the six Amendments for Addressing Essential Fish Habitat in Fishery Management Plans (October, 1998). Under the Shrimp FMP, brown, pink, and white shrimp and their life stages may coincide with restoration project sites. Restoration projects in the South Atlantic may be located within other areas identified as EFH for: red drum under the Red Drum FMP; approximately 57 species and life stages in the snapper-grouper complex, including triggerfishes, grunts, snappers, sea basses, and groupers; golden crab under the Golden Crab FMP; spiny lobster under the Spiny Lobster FMP; and coral and coral reefs under the Coral, Coral Reefs, and Live/Hard Bottom Habitat FMP.

Mid-Atlantic FMPs for Summer Flounder, Scup, Black Sea Bass, Atlantic Mackerel, Squid, Butterfish, Surf Clam, Ocean Quahog, and Bluefish

Community-based restoration projects off the coast of North Carolina north to the U.S.-Canadian border may be located within areas identified as EFH for species managed by the Mid-Atlantic Fishery Management Council under Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass FMP (October, 1998). This Plan identifies summer flounder, scup, and black sea bass and their life stages as species that may exist in CRP project areas. Restoration projects in the Mid-Atlantic may also coincide with areas identified as EFH for species managed by the Council under Amendment 8 to the Atlantic Mackerel, Squid, and Butterfish FMP (October, 1998). This Plan identifies long-finned squid and its life stages as a species that may exist in CRP project areas. Other restoration projects may be located in areas identified as EFH for species managed under Amendment 12 to the Atlantic Surf clam and Ocean Quahog FMP (October, 1998). This Plan identifies surf clam and its life stages as another species that may exist in CRP Mid-Atlantic project areas. CRP projects may also coincide with areas identified as EFH for bluefish under Amendment 1 to the Bluefish FMP (October, 1998).

U.S. Caribbean FMPs for Reef Fish, Spiny Lobster, Queen Conch and Coral

Community-based restoration projects in Puerto Rico and the U.S. Virgin Islands may be located within areas identified as EFH for species managed by the Caribbean Fishery Management Council under a Generic Amendment to four FMPs (October, 1998). The Reef Fish FMP identifies thirteen species of reef fish, including grouper, snapper, yellowtail, grunt, butterflyfish, triggerfish, squirrelfish, and tilefish, and their life stages that may exist in CRP project areas. Other species that may inhabit areas that coincide with CRP project locations include: spiny lobster and its life stages under the Spiny Lobster FMP; queen conch and its life stages under the Queen Conch FMP; and over one hundred species of coral, including stony corals and gorgonians, and over 60 species of plants, including seagrasses, and invertebrates under the Coral FMP.

Northeast Multispecies, Atlantic Sea Scallop, Atlantic Salmon, Atlantic Herring and Monkfish FMPs

Community-based restoration projects off the coast of New England may be located within areas identified as EFH for species managed by the New England Fishery Management Council under Amendment 11 to the Northeast Multispecies FMP (October, 1998). This Plan identifies Atlantic cod, haddock, ocean pout, American plaice, pollock, red hake, white hake, whiting, windowpane flounder, winter flounder, and yellowtail flounder and their life stages as species that may exist within CRP project locations. Restoration projects in the Northeast may also coincide with areas identified as EFH for: Atlantic herring under the Atlantic Herring FMP; Atlantic salmon under Amendment 1 to the Atlantic Salmon FMP; and Atlantic sea scallops under the Atlantic Sea Scallop FMP (October, 1998). Other restoration projects may be located in areas identified as EFH for species managed under the Monkfish FMP (October, 1998). This Plan identifies monkfish and its life stages as another species that may exist in CRP Northeast project areas.

4.2.2 Endangered Species Act

The Endangered Species Act (ESA) provides for the conservation of species that are in danger of extinction throughout all or a significant portion of their range, as well as designation of critical habitat for these species. Listed species under ESA that may benefit from CRP restoration projects are primarily aquatic species inhabiting coastal and riparian habitats, including anadromous salmon and trout and sturgeon (Table 3). These fish may temporarily migrate through a restoration project area. A listed species of vegetation that may benefit from restoration is Johnson's seagrass. Most habitat restoration projects are located in coastal or riparian areas and are of small-scale; with construction windows and best management practices the potential to impact listed and candidate species will be avoided. If the proposed project plans cannot fully incorporate all impact avoidance measures or if new information becomes available that affects the basis for the determination of not likely to affect, then supplemental consultation will be undertaken prior to project implementation. Information on each species listed below was obtained from the Office of Protected Resources, NOAA Fisheries' webpage.

Fish

--Pacific Coast

<u>Anadromous Pacific salmon and trout *(Oncorhynchus spp.)*</u>
Anadromous fish live in the ocean as adults, where they may undergo extensive migrations before returning to their natal streams and rivers to spawn and complete their life cycle.

Steelhead trout and four species of anadromous Pacific salmon (chinook, coho, chum, sockeye) and are currently listed as endangered or threatened under the Endangered Species Act. Pacific salmon and trout historically have supported important commercial, recreational and tribal fisheries in Washington, Oregon, and California.

Chinook Salmon *(Oncorhynchus tshawytscha)*
Chinook salmon are found from the Bering Strait south to Southern California. Historically, they ranged as far south as the Ventura River, California. Along the U.S. West Coast, there are 17 distinct groups, or evolutionarily significant units (ESUs), of chinook salmon, from southern California to the Canadian border and east to the Rocky Mountains. Snake River spring/summer Chinook and Snake River fall chinook were listed as threatened species in 1992. In 1994, Sacramento River winter-run chinook were listed as endangered. In March 1998, two ESUs were proposed as endangered, five proposed as threatened, and the Snake River fall-run ESU was proposed to include fall chinook salmon populations in the Deschutes River.

Description
Among chinook salmon, two distinct races have evolved. One race, described as a "stream-type" chinook, is found most commonly in headwater streams. Stream-type chinook salmon have a longer freshwater residency, and perform extensive offshore migrations before returning to their natal streams in the spring or summer months. The second race is called the "ocean-type" chinook, which is commonly found in coastal streams in North America. Ocean-type chinook typically migrate to sea within the first three months of emergence, but they may spend up to a year in freshwater prior to emigration. They also spend their ocean life in coastal waters. Ocean-type chinook salmon return to their natal streams or rivers as spring, winter, fall, summer, and late-fall runs, but summer and fall runs predominate. Ocean-type chinook salmon tend to utilize estuaries and coastal areas more extensively for juvenile rearing.

Chum Salmon (*Oncorhynchus keta*)
Along the U.S. West Coast, there are 4 distinct groups, or evolutionarily significant units (ESUs), of chum salmon. Two of these ESUs, Hood Canal summer-run and Columbia River, were proposed as threatened under the ESA in March 1998.

Description
Chum salmon are anadromous and semelparous (spawn only once and then die), and spawn primarily in fresh water. Chum salmon spawn in the lowermost reaches of rivers and streams, typically within 100 km of the ocean. They migrate almost immediately after hatching to estuarine and ocean waters, in contrast to coho, chinook, sockeye and pink salmon, and steelhead and cutthroat trout, which migrate to sea after months or even years in fresh water. This means that survival and growth in juvenile chum salmon depend less on freshwater conditions (unlike stream-type salmonids which depend heavily on freshwater habitats) than on favorable estuarine and marine conditions.

Coho Salmon *(Oncorhynchus kisutch)*
Along the U.S. West Coast, there are 6 distinct groups, or evolutionarily significant units (ESUs), of chum salmon. Three of these ESUs, Central California, Southern Oregon/Northern California Coasts, and Oregon Coasts, were listed as threatened under the ESA in October 1996, May 1997, and August 1998, respectively.

Description
Coho salmon are anadromous and semelparous. Coho spend approximately the first half of their life cycle rearing in streams and small freshwater tributaries. The remainder of the life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean prior to returning to their stream of origin to spawn and die.

<u>Sockeye Salmon</u> *<u>(Oncorhynchus nerka)</u>*
Along the U.S. West Coast, there are 7 distinct groups, or evolutionarily significant units (ESUs), of sockeye salmon. One of these ESUs, Snake River, was listed as endangered in November 1991. In March 1998, the Ozette Lake ESU was proposed as threatened and the Baker River ESU was designated as a candidate species.

Description
Sockeye salmon are mostly anadromous, and they exhibit a wide variety of life history patterns that reflect varying dependency on the fresh water environment. With the exception of certain river-type and sea-type populations, the vast majority of sockeye salmon spawn in or near lakes, where the juveniles rear for 1 to 3 years prior to migrating to sea. For this reason, the major distribution and abundance of large sockeye salmon stocks are closely related to the location of rivers that have accessible lakes in their watersheds for juvenile rearing. There are also *O. nerka* life forms that are non-anadromous, meaning that most members of the form spend their entire lives in freshwater. Non-anadromous *O. nerka* in the Pacific Northwest are known as kokanee. Occasionally, a proportion of the juveniles in an anadromous sockeye salmon population will remain in their rearing lake environment throughout life and will be observed on the spawning grounds together with their anadromous siblings. Taxonomically, the kokanee and sockeye salmon do not differ.

<u>Steelhead Trout</u> *<u>(Oncorhynchus mykiss)</u>*
West coast steelhead are presently distributed across about 15 degrees of latitude, from approximately 49EN at the U.S.-Canada border south to 34EN at the mouth of Malibu Creek, California. In some years steelhead may be found as far south as the Santa Margarita River in San Diego County. Climate and geological features vary greatly across this area. The southern California and upper Columbia River ESUs are listed as endangered. Eight other steelhead ESUs are listed as threatened, and one ESU (Oregon coast) is listed as a candidate for protection.

Description
Steelhead has the greatest diversity of life history patterns of any Pacific salmonid species, including varying degrees of anadromy, differences in reproductive biology, and plasticity of life history between generations. Within the range of West coast steelhead, spawning migrations occur throughout the year, with seasonal peaks of activity. In any given river basin there may be one or more peaks of migration activity; since these runs are generally named for the season in which they occur, some rivers may have runs known as winter, spring, summer, or fall steelhead. For example, large rivers such as the Columbia, Rogue, and Klamath have migrating adult steelhead at all times of year.

Threats
Declines in anadromous salmon and steelhead trout populations have been caused by several compounding factors. The waters off the Pacific coast have become warmer and less productive

since the late 1970s, triggering a decline in the chinook and coho populations that utilize this area. Overharvesting of certain populations has also put tremendous pressure on salmon and steelhead trout stocks. However, the greatest threats to anadromous salmon and steelhead trout are inherent in the species' life cycles. These fish migrate into freshwater to spawn and are thus subject to habitat degradation. Throughout their range, freshwater salmonid (including trout) habitat has been degraded and migration impeded by dam construction, channelization, mining, logging, agriculture, livestock grazing, urbanization, and pollution.

Restoration actions
Community-based restoration projects are typically small-scale and located in coastal areas. All construction activities will be performed during appropriate "windows" (of seasonal opportunity) when listed species are most likely to be outside the project area. These fish windows will vary by species and project location and will have to be adapted to local conditions. Most restoration activities will be performed by volunteers and will involve hand tools and replanting. Short-term impacts include localized sedimentation in streams and coastal waters. However, these impacts are very localized and temporary, and will not adversely affect anadromous salmon or trout.

--Atlantic Coast

<u>Anadromous Atlantic Salmon</u> <u>*(Salmo salar)*</u>
One distinct population segment (DPS) composed of seven river populations of Atlantic salmon are currently listed as threatened under the Endangered Species Act. The seven Maine rivers referred to are the following: Sheepscot, Ducktrap, Narraguagus, Pleasant, Machias, East Machias, and Dennys rivers.

Description
Atlantic salmon historically supported important commercial and recreational fisheries in the northeast US. Atlantic salmon of U.S. origin are anadromous and highly migratory, undertaking long marine migrations between the mouths of U.S. rivers and the northwest Atlantic Ocean where they are widely distributed seasonally over much of the region. Most Atlantic salmon of U.S. origin spend two winters in the ocean before returning to freshwater to spawn

Threats
Dams with either inefficient or non-existent fishways have been a major cause of the decline of U.S. Atlantic salmon. Dams adversely impact Atlantic salmon by impeding both their upstream and downstream migration, increasing predation, altering the chemistry and flow pattern of rivers, increasing water temperature, and reducing available flow downstream. Currently there are no hydropower dams on the seven rivers that have the potential to adversely impact the species. Beaver and debris dams have been documented on these rivers and may partially obstruct passage. Historically, the marine exploitation of U.S. origin Atlantic salmon occurred primarily in foreign fisheries. Recent scientific evidence suggests that low natural survival in the marine environment is a major factor contributing to the decline of Atlantic salmon throughout North America. It appears that survival of the North American stock complex of Atlantic salmon is at least partly explained by sea surface water temperature.

Restoration actions
Community-based restoration projects are typically small-scale and located in coastal areas. All construction activities will be performed during appropriate fish windows when listed salmon are

most likely to be outside the project area. These fish windows will vary by project location and will have to be adapted to local conditions. Most restoration activities will be performed by volunteers and will involve hand tools and replanting. Short-term impacts include localized sedimentation in streams and coastal waters. However, these impacts are very localized and temporary, and will not adversely affect migrating salmon populations.

Sturgeon *(Acipenser spp.)*

Two species of sturgeon, Gulf and shortnose, are listed as threatened and endangered respectively, under the Endangered Species Act.

Sturgeon are anadromous fishes that inhabit the Atlantic coast. These fishes spawn in coastal rivers and migrate offshore into the Gulf of Mexico or Atlantic Ocean. However, their marine migrations are nowhere near as extensive as other anadromous Atlantic species, such as shad and salmon. Sturgeon return to their natal freshwater streams to spawn at maturity, but unlike salmon, they return to the sea to spawn again in future years.

Gulf Sturgeon *(Acipenser oxyrinchus desotoi)*

The National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service (FWS) listed the Gulf sturgeon as a threatened species on September 30, 1991. NMFS and FWS share jurisdiction for this species under the Endangered Species Act. The Gulf sturgeon, also known as the Gulf of Mexico sturgeon, is a subspecies of the Atlantic sturgeon.

Description

Gulf sturgeon are anadromous, with reproduction occurring in fresh water. Most adult feeding takes place in the Gulf of Mexico and its estuaries. Historically, the Gulf sturgeon occurred from the Mississippi River to Charlotte Harbor, Florida. It still occurs, at least occasionally, throughout this range, but in greatly reduced numbers. The fish is essentially confined to the Gulf of Mexico. River systems where the Gulf sturgeon are known to be viable today include the Mississippi, Pearl, Escambia, Yellow, Choctawhatchee, Appachicola, and Swannee Rivers, and possibly others.

Shortnose Sturgeon *(Acipenser brevirostrum)*

The shortnose sturgeon was listed as endangered throughout its range on March 11, 1967. It is an anadromous fish that spawns in the coastal rivers along the east coast of North America from the St. John River in Canada to the St. Johns River in Florida.

Description

The shortnose sturgeon is anadromous, living mainly in the slower moving riverine waters or nearshore marine waters, and migrating periodically into faster moving fresh water areas to spawn. This species prefers the nearshore marine, estuarine and riverine habitat of large river systems. Shortnose sturgeon, unlike other anadromous species in the region such as shad or salmon, do not appear to make long distance offshore migrations.

Shortnose sturgeon occur in most major river systems along the eastern seaboard of the United States. In the southern portion of the range, they are found in the St. Johns River in Florida; the Altamaha, Ogeechee, and Savannah Rivers in Georgia; and, in South Carolina, the river systems that empty into Winyah Bay and the Santee/Cooper River complex that forms Lake Marion.

Data are lacking for the rivers of North Carolina. In the northern portion of the range, shortnose sturgeon are found in the Chesapeake Bay system, Delaware River from Philadelphia, Pennsylvania to Trenton, New Jersey; the Hudson River in New York; the Connecticut River; the lower Merrimack River in Massachusetts and the Piscataqua River in New Hampshire; the Kennebec River in Maine; and the St. John River in New Brunswick, Canada. One partially landlocked population is known in the Holyoke Pool, Connecticut River, and another landlocked group may exist in Lake Marion on the Santee River in South Carolina.

Threats
Dams have been a significant factor in the decline of sturgeon. These anadromous fish are unable to negotiate fish ladders and other in-stream structures to reach spawning habitat. Habitat degradation associated with dredging and dredged material disposal, pollution, and other human activity remains a constant threat to sturgeon populations.

Restoration actions
Community-based restoration projects are typically small-scale and located in coastal areas. All construction activities will be performed during appropriate fish windows when listed species are most likely to be outside the project area. These fish windows will vary by species and project location and will have to be adapted to local conditions. Most restoration activities will be performed by volunteers and will involve hand tools and replanting. Short-term impacts include localized sedimentation in streams and coastal waters. However, these impacts are very localized and temporary, and will not adversely affect migrating sturgeon populations.

Turtles
Turtles are saltwater reptiles, well-adapted to life in their marine world. Although sea turtles live most of their lives in the ocean, adult females must return to land in order to lay their eggs. Sea turtles often travel long distances from their feeding grounds to their nesting beaches. Six species of turtles (Green, Hawksbill, Kemp's Ridley, Leatherback, Loggerhead, and Olive Ridley) are currently listed as endangered or threatened under the Endangered Species Act.

All six species encounter human impacts in their nesting environment as well as in the marine environment. Impacts to the nesting environments include egg poaching, erosion of nesting beaches, compaction of beaches by heavy machinery and off-road vehicles, and fortification of beach front property which results in loss of a dry nesting beach. Impacts in the marine environment include habitat destruction from dredging, turtle consumption of marine debris such as plastic and Styrofoam which interferes with metabolism, and marina and dock development which causes foraging habitat to be destroyed or damaged.

Green Sea Turtle (*Chelonia mydas*)
The breeding populations of the green sea turtle off Florida and the Pacific coast of Mexico are listed as endangered while all others are threatened.

Description
The green sea turtle can be found around the U.S. Virgin Islands, Puerto Rico, and the continental U.S. from Texas to Massachusetts. Important feeding grounds include Indian River Lagoon, the Florida Keys, and Cedar Key. They are also found in the North Pacific ranging from Eliza Harbor, Alaska, to Ucluelet, British Columbia.

Threats
The greatest cause of decline in green turtle populations is commercial harvest for eggs and food. Other turtle parts are used for leather and jewelry, and small turtles are sometimes stuffed for curios. Incidental catch during commercial shrimp trawling is a continuing source of mortality that adversely affects recovery.

Hawksbill Turtle (*Eretmochelys imbricata)*
Within the United States, hawksbills are most common in Puerto Rico and its associated islands, and in the U.S. Virgin Islands. In the continental U.S., the species is recorded from all the Gulf states and from along the eastern seaboard as far north as Massachusetts, with the exception of Connecticut, but sightings north of Florida are rare.

Description
The hawksbill is a small to medium-sized turtle that utilizes a variety of habitats through out its life cycle. Post-hatchling hawksbills occupy the pelagic environment and return to coastal waters upon reaching a certain size. Juveniles and adults forage on oyster reefs in order to have access to sponges, a staple of their diet. The hawksbill occurs in tropical and subtropical seas of the Atlantic, Pacific and Indian Oceans.

Threats
There are a number of threats to hawksbill, including poaching of eggs from nesting beaches, entanglement in marine debris, including monofilament gill nets, fishing line and rope. Hawksbill turtles eat a wide variety of debris such as plastic bags, plastic and styrofoam pieces, tar balls, balloons and plastic pellets. Effects of consumption include interference in metabolism or gut function, even at low levels of ingestion, as well as absorption of toxic by products. International commerce in hawksbill shell (bekko) is the single most significant factor endangering hawksbill populations around the world.

Kemp's Ridley Turtle (*Ledidochelys kempii)*
The Kemp's Ridley occurs mainly in coastal areas of the Gulf of Mexico and the northwestern Atlantic Ocean and listed as endangered throughout its range.

Description
The Kemp's Ridley is one of the smallest of all extant sea turtles. The major nesting beach is on the northeastern coast of Mexico.

Threats
The decline of this species was primarily due to human activities including: collection of eggs, fishing for juveniles and adults, killing adults for meat and other products, and direct take for indigenous use. In addition to these sources of mortality, Kemp's Ridley have been subject to high levels of incidental take by shrimp trawlers.

The population seems to be in the earliest stages of recovery due to strict protection. The increase can be attributed to full protection of nesting females and their nests in Mexico as well as the requirement to use turtle excluder devices (TEDs) in shrimp trawls in both the United States and Mexico.

Leatherback Sea Turtle (*Dermochelys coriacea)*
The Leatherback turtle is listed as endangered throughout its range. Some of the largest nesting assemblages are found in the U.S. Virgin Islands, Puerto Rico, and Florida. During the summer, Leatherbacks tend to be found along the East Coast of the United States ranging from the Gulf of Maine south to the middle of Florida. They have also been sited offshore of the Hawaiian Islands.

Description
The Leatherback is the largest living turtle, and is so distinctive as to be placed in a separate taxonomic family. Nesting trends of the Leatherback appear stable in the United States, but the population faces significant threats from incidental take in commercial fisheries and marine pollution.

Threats
One of the primary threats to Leatherbacks is the tremendous overharvesting of eggs as well as direct harvesting of adults. Habitat destruction and incidental catch in commercial fisheries have also caused the population to decline.

Loggerhead Sea Turtle (*Caretta caretta)*
Loggerheads are the most abundant species in U.S. coastal waters and have been listed as threatened throughout its range.

Description
Primary Atlantic sites for the Loggerhead are found along the east coast of Florida, with additional sites in Georgia, the Carolinas, and the Gulf Coast of Florida. Loggerheads are also found as far north as Alaska in the eastern Pacific with occasional sightings of juveniles off the coast of Washington.

Threats
The most significant threat to the Loggerhead populations is coastal development, increased use of nesting beaches by humans, and pollution. Shrimp trawling has also had a devastating impact on the populations.

Olive Ridley Sea Turtle (*Lepidochelys oliveacea)*
The Olive Ridley turtle is listed as threatened for the Mexican nesting population and threatened for all other populations.

Description
The Olive Ridley is a small, hard-shelled marine turtle. Its range is essentially tropical with the occasional sighting of non-nesting individuals in the southwestern United States. It has been recommended that the Olive Ridley be reclassified as endangered for the Western Atlantic because of a decline in abundance.

Threats
The greatest cause of decline of the Olive Ridley is by direct harvesting of adult turtles as well as eggs. The continued direct and incidental uptake of turtles in shrimp trawl nets and the loss of habitat are additional concerns.

Restoration Actions
Community-Based restoration projects consist of protecting nesting habitat of turtles. Restoration activities may involve the removal of invasive plants, which act as physical barriers to turtles in addition to causing de-stabilization of dunes. Removal of invasives would be completed before sea turtle nesting season in order to prevent damage to nesting habitat. Planting of native dune vegetation would promote re-stabilization of the dune community. Also, abandoned net removal from reefs would avoid potential turtle interaction.

Table 3. Species Listed under the Endangered Species Act (ESA) that may be encountered during proposed project planning.

(Key: C = Candidate; E = Endangered; T = Threatened)

Birds

Status	*Species Name*
E	Blackbird, yellow-shouldered (*Agelaius xanthomus*)
E	Cahow (*Pterodroma cahow*)
E	Coot, Hawaiian (*Fulica americana alai*)
E	Crane, Mississippi sandhill (*Grus canadensis pulla*)
E	Crane, whooping (*Grus americana*)
E	Duck, Hawaiian (*Anas laysanensis*)
E	Duck, Laysan (*Anas laysanensis*)
E	Eagle, bald (*Haliaeetus leucocephalus*)
T	Eider, spectacled (*Somateria fischeri*)
T	Eider, Steller's (*Polysticta stelleri*)
E	Flycatcher, southwestern willow (*Empidonax traillii extimus*)
E	Goose, Aleutian Canada (*Branta canadensis leucopareia*)
E	Goose, Hawaiian (*Branta sandvicensis*)
E	Kingfisher, Guam Micronesian (*Halcyon cinnamomina cinnamomina*)
E	Kite, Everglade snail (*Rostrhamus sociabilis plumbeus*)
E	Mallard, Mariana (*Anas oustaleti*)
E	Moorhen, Hawaiian common (*Gallinula chloropus sandvicensis*)
E	Moorhen, Mariana common (*Gallinula chloropus guami*)
E	Pelican, brown (*Pelecanus occidentalis*)
E	Petrel, Hawaiian dark-rumped (*Pterodroma phaeopygia sandwichensis*)
E, T	Plover, piping (*Charadrius melodus*)
T	Plover, western snowy (*Charadrius alexandrinus nivosus*)
E	Rail, California clapper (*Rallus longirostris obsoletus*)
E	Rail, Guam (*Rallus owstoni*)
E	Rail, light-footed clapper (*Rallus longirostris levipes*)
E	Rail, Yuma clapper (*Rallus longirostris yumanensis*)
T	Shearwater, Newell's Townsend's (*Puffinus auricularis newelli*)
E	Sparrow, Cape Sable seaside (*Ammodramus maritimus mirabilis*)
E	Stilt, Hawaiian (*Himantopus mexicanus knudseni*)
E	Stork, wood (*Mycteria americana*)
E	Tern, California least (*Sterna antillarum browni*)
E	Tern, least (*Sterna antillarum*)
E, T	Tern, roseate (*Sterna dougallii dougallii*)
E	Warbler, nightingale reed (*Acrocephalus luscinia*)

Corals

Status	*Species Name*
C	Elkhorn Coral (*Acropora palmate*)
C	Staghorn Coral (*Acropora cervicomis*)

Fishes

Status	*Species Name*
C	Alabama Shad (*Alosa alabamae*)
E	Atlantic Salmon (*Salmo salar*)
C	Atlantic Sturgeon (*Acipenser oxyrhynchus oxyrhynchus*)
C	Barndoor Skate (*Raja laevis*)
C	Bocaccio (*Sebastes paucispinis*)
C	Brown Rockfish (*Sebastes* auriculatu)s
E, T, C	Chinook Salmon (*Oncorhynchus tshawytscha*)
T	Chum Salmon (*Oncorhynchus keta*)
T, C	Coho Salmon (*Oncorhynchus kisutch*)
C	Copper Rockfish (*Sebastes caurinus*)
C	Dusky Shark (*Carcharhinus obscurus*)
T	Gulf Sturgeon (*Acipenser oxyrinchus desotoi*)
C	Jewfish (*ephinephelus itijara*)
C	Key Silverside (*Menidia conchorum*)
C	Largetooth Sawfish (*Pristis pristis*)
C	Mangrove Rivulus (*Rivulus marmoratus*)
C	Nassau Grouper (*Epinephelus striatus*)
C	Night Shark (*Carcharinus signatus*)
C	Opposum Pipefish (*Microphis brachyurus lineatus*)
C	Pacific Cod (*Gadus macrocephalus*)
C	Pacific Hake (*Merluccius productus*)
C	Pacific Herring (*Clupea pallasi*)
C	Quillback Rockfish (*Sebastes maliger*)
C	Saltmarsh Topminnow (*Fundulus jenkinsi*)
C	Sand Tiger Shark (*Odontaspis Taurus*)
C	Searun Cutthroat Trout (*Oncorhynchus clarki clarki*)
E	Shortnose Sturgeon (*Acipenser brevirostrum*)
C	Smalltooth Sawfish (*Pristis pectinata*)
E, T, C	Sockeye Salmon (*Oncorhynchus nerka*)
C	Speckled Hind (*Epinephelus drummondhayi*)
E, T, C	Steelhead Trout (*Oncorhynchus mykiss*)
C	Walleye Pollock (*Theragra chalcogramma*)
C	Warsaw Grouper (*Epinephelus nigritus)*

Mammals

Status	*Species Name*
T	Steller Sea Lion (*Eumetopias jubatus*)
T	Guadalupe Fur Seal (*Arctocephalus townsendi*)
E	Hawaiian Monk Seal (*Monachus schauinslandi*)
C	Harbor Porpoise (*Phocoena phocoena*)

Mollusks

Status	*Species Name*
C	White Abalone (*Haliotes sorenseni*)
C	Black Abalone (*Haliotis cracherodii*)

Plants

Status	*Species Name*
T	Johnson's Sea Grass (*Halophila johnsonii*)

Reptiles

Status	*Species Name*
E, T	Green Turtle (*Chelonia mydas*)
E	Hawksbill Turtle (*Eretmochelys imbricata*)
E	Kemp's Ridley Turtle (*Lepidochelys kempii*)
E	Leatherback Sea Turtle (*Dermochelys coriacea*)
T	Loggerhead Sea Turtle (*Caretta caretta*)
T	Olive Ridley Sea Turtle (*Lepidochelys oliveacea*)

4.3 Human Environment/Socioeconomics

Coastal regions are home to more than 139 million people (approximately 53 percent of the nation's total), and this population is expected to increase to 165 million by the year 2010 (NOAA 1998). People enjoy coastal areas for their beauty and depend on them for recreational and commercial uses. Estuaries and coastal wetlands provide essential habitat for 80-90 percent of the recreational fish catch and 75 percent of the commercial harvest. Commercial and recreational fishing industries employ 1.5 million people and contribute $111 billion to the nation's economy (RAE 2000a). However, human activities and development have caused the destruction of more than half (roughly 55 million acres) of the wetlands in our coastal states (RAE 2000b).

As a result of these continuing increases in human development and activities in coastal areas, there have been concurrent declines in water and air quality, and habitat fragmentation and degradation. However, community, educational institutions and other groups are also increasing their involvement through activities like the those conducted under the CRP, and are helping to reverse the trend in coastal habitat decline. The CRP projects are generally small-scale, involving local community individuals and groups, homeowners and businesses, working together to restore coastal marine habitat.

4.3.1 National Historic Preservation Act

The National Historic Preservation Act (NHPA) section 106 establishes preservation as a national policy and directs the Federal government to provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation [see 36 CFR part 800]. Preservation is defined as the protection, rehabilitation, restoration, and reconstruction of districts, sites, buildings, structures, and objects significant in American history architecture, archaeology, or engineering. This includes Native American and Native Hawaiian tribal properties and values. Federal agencies are directed under the NHPA to maintain historic properties in ways that consider the preservation of historic, archaeological, architectural, and cultural values.

The Community-Based Restoration Program must comply with the NHPA by coordinating with the State Historic Preservation Officers (SHPO). Sites affected by community-based restoration will be local, small-scale, and in tidally-influenced/moving environments; there should be a very low potential to effect historical and cultural resources covered under this Act. If potential historical and cultural resources are identified at any CRP site, additional coordination would be undertaken with SHPO to ensure full compliance with the Act.

5.0 ENVIRONMENTAL CONSEQUENCES

5.1 Consequences of the No Action Alternative

The consequences of the No Action Alternative are that the Community-Based Restoration Program would be eliminated, and the ongoing loss of living marine resource habitat would continue without any restoration and additional resources leveraged through this program. Specifically, discontinuation of the CRP would result in a loss of restoration funding and volunteer resources provided through numerous partnerships. Living marine resources currently threatened by habitat loss would continue to decline without benefit of recourse provided by the CRP, and additional living marine resources would most likely become threatened and degraded as a result. Commercial and recreational fishers dependent on declining fisheries stocks would continue to experience lost revenues and increased uncertainty in the persistence of the resource, in part due to lack of habitat restoration under the CRP.

5.2 Consequences of the Preferred Alternative and Cumulative Impacts

The objective of the Community-Based Restoration Program is to improve all degraded natural habitats utilized by living marine resources. Activities conducted under the program include submerged aquatic vegetation (SAV) restoration; improved anadromous fish passage; invasive plant removal followed by re-vegetation with native species; salt marsh restoration; oyster reef restoration; kelp forest restoration; coral reef restoration; developing wetland plant nurseries as a source of restoration material; mangrove forest restoration; riparian habitat restoration; and anadromous fish habitat restoration. Under the Preferred Alternative, benefits to living marine resources would be realized through an integrated, ecosystem-based approach to restoration. Project funding typically ranges from $10,000 to $50,000. Certain activities may be eligible for categorical exclusion under NOAA NEPA Guidance, including re-vegetation of habitats or topographical features; restoration of submerged, riparian, intertidal, or wetland substrates; and replacement or restoration of shellfish beds through transplanting or restocking (NAO 216-6.03(b)(2)).

The CRP projects involve the restoration of coastal habitats that benefit living marine resources. These restoration activities are undertaken in riparian, marsh, shellfish, submerged aquatic vegetation, coral, shoreline, kelp, and mangrove habitats. All activities address the specific habitat needs that would provide for increased ecological structure and functions. In addition to the conservation and protection provided through the stewardship and education component of each project, the following increase in habitat may occur on an annual basis. In riparian systems approximately 50 miles of stream and 190 acres of habitat would be restored. Approximately 400 hundred acres of marsh habitat would be restored. Approximately 90 acres of shellfish would be restored. Restoration of approximately six acres of submerged aquatic vegetation, 11,000 acres of coral reef, 90 acres of shoreline, one acre of kelp, and five acres of mangrove would be undertaken.

These activities would have a long-term beneficial impact on living marine resources. These restoration activities would be undertaken (best management practices) to eliminate or minimize all short-term adverse impact associated with construction activities. The potential for any adverse impact is very low. These potential impacts are addressed in the short-term impact sections for each habitat type. The cumulative impacts for all activities undertaken would be minor water quality reduction due to turbidity plumes, noise from equipment and volunteers, and air quality reduction from vehicles.

Adverse Impact Avoidance and Minimization
Timing of restoration construction would be limited to appropriate fish windows to minimize impacts to living marine resources. People conducting the restoration will be trained in use of low-impact techniques for each activity and habitat, to avoid or minimize any impacts due to foot traffic, diving techniques, equipment handling, and planting techniques. Turbidity curtains, haybales, and other erosion prevention tools will be used as applicable, to limit sediment erosion from sites. Staging areas and access roads will be kept to a minimum size, wherever such measures are needed. Tidal and riverine flows will be maintained, to the maximum extent practicable, during restoration activities. In ecologically sensitive areas such as coral reefs, appropriate methods and care will be used in equipment handling and vessel mooring. Any transplanting of plants or other biological resources will be conducted in a manner to keep the transplants as viable as possible (for example, coral transplants will be kept moist). Monitoring will be conducted to ensure compliance with project design and restoration success.

Examples of these small-scale habitat restoration projects are described below, followed by an analysis of the short-term adverse affects that could result from related construction activities. The CRP will continue to implement these project types on an annual basis.

Riparian Habitat Restoration

--Russian River, Alaska--
Restoration of approximately 1,900 feet of riverbank along the Russian River in Alaska included log terracing, coir log installation, application of imported soils and erosion mats, and planting of willows and cottonwood. Using expertise provided by NOAA's National Marine Fisheries Service in partnership with FishAmerica Foundation and with support of staff and volunteers from Alaska’s Youth Restoration Corps (YRC), the restoration took place over six weeks. A new restoration technique approved by the Alaska Department of Fish and Game alternates rows of soil bags with live vegetation, creating a new stable bank with new habitat. Portions of the existing riverbank trail were temporarily fenced off and revegetated by loosening existing trail soil, replanting it with native vegetation and covering it with an erosion mat. Root wads (stumps 6-8 inches wide) were also placed in the riverbed with duckbill anchors, providing both immediate habitat and a foundation for additional streambank restoration.

Youths 16 to 19 years of age received training in the use of biorestoration and bank stabilization techniques for this project. The training consisted of classroom instruction and "hands-on" work experience. Participants learned about the ecosystem they would be restoring and the natural and human processes that have accelerated the degradation of the project areas. The restored areas were "rested" through the summer peak season and monitored by the students for the remainder of the program to study the effects of the restoration, which is expected to boost populations of sportfish, including sockeye salmon and rainbow trout.

Short-Term Impacts:
Riparian habitat restoration practices usually involve re-vegetation activities, placement of large woody debris (LWD), and often the construction of large root wad structures. Re-vegetation usually results in minor disturbance of the surrounding habitat by volunteers, which is quickly remedied by the re-vegetation of the area itself. However, the placement of LWD and creation of root wad structures often requires the use of heavy machinery to place large logs into the stream. The use of heavy machinery can often cause damage to the surrounding riparian area such as clearing of existing vegetation, compaction, and disruption of the soil. This, in turn, may cause sedimentation in the adjacent stream with turbidity plumes typically being short-term and quickly dispersed by the river current. Another factor to consider during riparian habitat restoration is the presence of spawning habitat within the stream. Any activities that disturb the stream or alter its conditions can have an impact on migrating salmonids.

The restoration of the Russian River consisted of the construction of a large root wad structure as well as re-vegetation of the surrounding area by the YRC. Several measures were taken to eliminate or reduce any possible impacts to the surrounding habitat during construction. Instead of using heavy machinery to place LWD and construct the root wad structure, both activities were done manually by volunteers (Wolf, pers. comm). This eliminated the potential for the surrounding area to be cleared by large machinery and reduced the potential for erosion. The construction of the root wad structure involved burial of a tree stump underneath the undercut bank of the damage area and rebuilding the bank back to its original vegetated contour. To prevent damage to the stream bottom, construction of the root wad was performed during low water levels. Erosion mats made of coconut fiber were also used to prevent erosion and damage to habitat and species while allowing the root wad structure to grow, anchoring it into place naturally. The use of biodegradable mats ensured that no damage to salmonids would occur as the coconut fiber deteriorates. To reduce the impact of the restoration on migrating salmonids, most restoration work was done before June, when fishing season begins. The Russian River riparian habitat restoration was planned as a low-impact restoration that had little adverse affect on the surrounding habitat. Any impacts resulting from the restoration were short-term and quickly dispersed (i.e., sediments), or avoided entirely.

Anadromous Fish Habitat Restoration

--*Nine major watersheds, Oregon*--
Watershed restoration and salmon recovery are being integrated in nine key watersheds on the southern Oregon Coast. This coast is a significant, high priority region for salmon recovery. Coho salmon here are listed as threatened under the Endangered Species Act, and salmon production in this area is limited by erosion and silting in of spawning habitat, high water temperatures due to lack of streamside shade, and lack of refuge-providing habitat complexity due to past intensive logging. Large woody debris (LWD) provides multiple benefits for all species of native salmonids. Large wood traps gravel for spawning; provides refuge for juveniles; helps create pools, a vital component of freshwater habitat; provides breeding habitat for insects that become fish food; and contributes organic material to the riverine system.

In 1999, the CRP and FishAmerica joined with the South Coast and Lower Rogue Watershed Councils, Siskiyou Coast Salmon Recovery and the U.S. Forest Service to begin implementing watershed restoration projects in nine major watersheds in cooperation with over 60 individual landowners, based on an existing watershed assessment and action plan that identified priorities for restoration. One of these priority sites is located at Mill Creek tributary, second on the Chetco south bank, where intensive logging practices of the past have resulted in a lack of large woody debris. With the help of community volunteers, restoration of the Mill Creek tributary began with the addition of 20 trees and logs to the stream. The U.S. Forest Service re-vegetated approximately 10,890 square feet of the surrounding riparian zone. Monitoring of the site includes standard spawning surveys to measure habitat changes from the placement of LWD, and a measure of the ratio of riffles to pools

Short-Term Impacts:
The addition of large woody debris often requires the use of heavy machinery to place wood into the stream. This process may cause temporary erosion and small-scale land clearing of the immediate area. This project did utilize heavy equipment for the placement of wood that was yarded in with a cable (Hoogesteger, pers. comm.). Adverse impacts included a skid trail from the equipment that exposed about 10 square yards of soil and caused some minor erosion and sedimentation into the stream. However, this impact was quickly mitigated by the re-vegetation of the area by the U.S. Forest Service.

Localized, temporary turbidity plumes were created as a result of erosion and sedimentation, but were quickly dispersed by stream currents. Preset routes to the restoration site were also established to minimize trampling of adjacent riparian areas. The risk of impact to migrating salmon was also a possible result of the restoration. To avoid this impact, restoration activities took place during the fish window, between July 15 through September 30, when few salmonids are present in the stream. Overall, adverse impacts were limited as a result of precautionary measures taken to limit the potential damage to the surrounding habitat. Since construction work was performed during the off-peak season for salmonid migration, and re-vegetation efforts restored any soil exposed from construction, impacts were short-term and limited in scope.

<u>Anadromous Fish Passage Restoration</u>

--*Adobe Creek, Sonoma County, California*--
Anadromous fish runs are declining throughout California, largely as a result of alteration of spawning habitat. As part of NOAA's effort to restore habitat for salmon and steelhead trout, the NOAA Restoration Center CRP provided funds and technical expertise to implement the Adobe Creek Fish Passage Project in Sonoma County, California. The project involved a partnership with an organization of high school students, and the United Anglers of Casa Grande, who had successfully restored habitat used by steelhead that had been nearly extirpated from the highly-modified Adobe Creek.

The CRP-funded phase of the restoration involved construction of a permanent step-pool fish ladder system to provide passage for steelhead trout and chinook salmon over a 12-foot obstruction, thereby providing the fish with access to additional spawning habitat. The student group is maintaining the fish ladder and monitoring its success as part of their ongoing stewardship of Adobe Creek. Long-term benefits include a fully functioning stream for unrestricted passage of migrating steelhead with riparian re-growth to keep stream temperatures habitable. The restored site now provides shelter, shade, and feeding areas for many species of fish and wildlife.

Short-Term Impacts:
The greatest potential for short-term impacts was expected to result from activities associated with the construction of the fish ladder. A short stream reach was diverted around the project site (Wantuck, pers. comm). This was performed during the month of September when no fish migration was occurring. In order to build the fish passage structure, an adjacent field was used as a staging area for large boulders and construction equipment. A medium-size backhoe was used to carry boulders and logs and place them in the stream. Care was taken to minimize disturbance and damage to riparian vegetation by planning the ingress and egress routes in advance. Cleanup and site restoration involved removing debris, re-grading where necessary, erosion control, and replanting of affected areas with native plants.

<u>Marsh Restoration</u>

--*Ipswich, Massachusetts*--
The construction of Argilla Road, in Ipswich, Massachusetts, over one hundred years ago reduced tidal flushing to approximately 15 acres of salt marsh. Common reed, *Phragmites australis*, expanded into many locations in the marsh as a consequence of restricted natural tidal flushing caused by a severely undersized culvert. The tidal range upstream of the road was less than two feet, while on the downstream side it ranged up to eight feet. Lack of tidal flow to this salt marsh prevented fish and shellfish species from occupying this important feeding and spawning area. Excessive mosquito breeding was also problematic in the high marsh pannes, since these areas were only flooded under storm conditions when waves and tidal surge overtopped the roadway.

In 1998, the undersized culvert was replaced with a 5-foot by 8-foot concrete box culvert to increase the mean-high-water level in portions of the previously restricted marsh. Two weeks after the installation, the upstream portion of the marsh was completely flooded for the first time since the construction of Argilla Road. Restoration of a normal tidal flushing regime to the marsh has provided a significant increase in available habitat for both estuarine plant and animal species. Monitoring efforts began in the spring of 1999 with NMFS staff and partners collecting data on fish use, tidal hydrology and vegetation. Observations of *Phragmites* indicated a drastic reduction in their height in the past year with many areas dying off. The inundation of the marsh with salt water has also resulted in replacement of *Typha* with *Salicornia,* a salt marsh pioneer species. The project resulted in the ecological enhancement and restoration of 15 acres of degraded tidal wetlands.

Short-Term Impacts:
The culvert replacement process required heavy machinery to lower the new culvert into place. Construction work performed during the culvert replacement could have easily caused many short-term impacts to the surrounding marsh habitat. These impacts include erosion and increased turbidity levels caused by the excavation and dewatering of the tidal creek to maintain a dry work area. Another possible impact was flooding of the marsh with ocean water due to a

seven-foot difference between the dry work site in the tidal creek and freshwater on the other side of Argilla Road.

Several precautionary measures were taken to prevent and/or limit these impacts. Erosion and increased turbidity levels were prevented using a turbidity curtain, a floating silt fence that prevents the flow and/or washing out of disturbed debris from the tidal creek. The turbidity curtain also localized any erosion to an isolated area. Flooding of the tidal creek was prevented through the construction of a barrier to prevent freshwater from entering the work area during construction. Due to these measures, very limited impacts to the surrounding habitat occurred during the replacement of the undersized culvert. Minor erosion and limited turbidity plumes were short-term and quickly dissipated because of increased tidal flushing through the larger culvert.

<u>Submerged Aquatic Vegetation (SAV) Restoration</u>

--*Chesapeake Bay, Maryland*--
Development and agriculture have had a major impact on the amount of SAV occurring in the Chesapeake Bay. Excess nutrients and suspended solids from increased fertilizer use, poor sewage treatment and pollution have led to cloudy waters that light cannot penetrate. This makes photosynthesis impossible for SAV, contributing to its decline. In 1997, the CRP partnered with the Alliance for the Chesapeake Bay to evaluate how best to use community volunteers to restore seagrasses at two sites, St. Jeromes Creek and near the mouth of the Patuxent River. The volunteer-based restoration program was implemented to assess the effectiveness of transplanting seagrass at sites where water quality requirements have been met but no grasses exist, and to evaluate the feasibility of increasing public involvement in seagrass restoration projects.

More than 350 plants from Maryland's Horn Point Laboratory were transplanted to the two sites by volunteers, to restore more than 7,400 square feet of seagrass within the Bay. Field efforts included a demonstration of transplanting techniques to be used by volunteers. Recruiting and training of volunteers to implement a water quality monitoring program was conducted. The goal of the monitoring program was to learn what areas in the Bay meet habitat requirements of the plants and identify potential locations for seagrass restoration.

Short-Term Impacts:
SAV restoration often involves transplanting eelgrass plants (*Zostera marina*) from existing SAV donor beds, which can cause short-and long-term adverse impacts to SAV. Instead of transplanting eelgrass plants from existing beds, this project used a laboratory-based method of reproducing numerous propagules from one parent plant to be used for restoration material. The propagules were then grown-out to plant shoots in a controlled setting before being transplanted to the restoration site. This micro-propagation process causes no damage to existing seagrass beds since all work is done in the laboratory. Instead of planting propagules into the soft-bottom substrate of the restoration sites, propagules were placed on a cocoa mat planting medium where their roots were allowed to develop. Bamboo stakes were used to anchor the mats to the soft bottom at the restoration site. The use of the cocoa mat planting medium allowed the planting of more than one plant at a time and prevented plants from being covered by sediment. This method of planting had little to no impact on the surrounding habitat and associated fauna since

no digging or clearing of bottom substrate was required. Overall, the restoration methods used in this project gave little evidence of any short-term impacts to the surrounding environment.

Shellfish/Artificial Reef Restoration

--*Chesapeake Bay, Maryland*--

The oyster has been an integral part of the Chesapeake Bay region's economic development and cultural heritage. Oysters improve water quality by filtering out large quantities of suspended sediment along with plankton they feed on. In recent years, the oyster population has experienced a significant decline in the Chesapeake Bay due to the effects of pollution. In an effort to reverse this trend, the CRP has partnered with local groups to restore an oyster reef in the Western Branch of the Elizabeth River, Virginia. Hatchery-produced seed oysters were grown in floating cages (2,000 oysters per cage) by middle and high school students. At the end of the academic year, over 100,000 oysters were planted on a reconstructed half-acre reef built with oyster shell by a local marine contractor. Students helped to monitor the growth and survival of the oysters. The project involved a partnership with the Virginia Marine Resources Commission, Chesapeake Bay Foundation, civic organizations and private citizens to stimulate public awareness of the ecological value of oyster reefs and a generated a heightened sense of community stewardship for local restoration of the affected resources.

Short-Term Impacts:

One of the primary adverse impacts caused by oyster reef construction projects is not due to the construction, but to the source from which shell is obtained. Shells are commonly obtained via two methods. Dredge shell programs obtain buried shells by dredging areas, which can cause short-term turbidity problems. The other method of obtaining shell is to purchase them through shucking houses, which has no adverse impact to aquatic habitat. During construction, turbidity problems may also arise when shells are deployed onto the reef. Any bottom-dwelling benthic organisms, fish and plants in the area would also be buried during placement of shell, including any organisms on the existing reef.

The restoration of the oyster reef in the Elizabeth River involved the placement of over 43,484 bushels of oyster shells on the half-acre reef. These shells were obtained from shucking houses so that adverse impacts to habitat due to shell collection were avoided (Wesson, pers. comm). Before being deployed onto the oyster reef, the shells were washed to remove any debris. The project site is located in an open area of the river that is free of any submerged aquatic vegetation. To minimize turbidity problems in the construction of the reef, oyster shells were washed overboard from barges onto the project sites. Some aquatic invertebrates and fish may have been displaced in that inhabited area. However, the restoration of oysters on the reconstructed reef was beneficial in the long- term for water quality and reef fauna.

Shoreline Restoration

--*Blind Creek Park, Florida*--

Blind Creek Park is a reserve located between the Indian River Lagoon and the Atlantic Ocean on South Hutchinson Island. The presence of non-native Australian pines on the beaches of South Hutchinson Island have resulted in increased erosion and reduced nesting areas for several species of endangered and threatened sea turtles. The roots act as a physical barrier for turtles trying to excavate nesting sites and can lead to false crawls, nests laid at or below the high tide line, or even roots growing right through the eggs.

In 1999, the CRP funded efforts to remove the non-native vegetation from the shoreline and replace them with native species like sea oats that will hold the sand in place. The project area consisted of approximately 62 acres of a dune system favored by Green, Leatherback, and Loggerhead sea turtles as a nesting site. Of the 62-acre project site, 30 acres had been invaded by the Australian pines; that led to dune de-stabilization as a result of the presence of roots of the non-native species.

The removal of Australian pines reduces erosion and restores the natural slope of the shoreline, which, in turn, may help nesting turtles find their way from the water to the beach. Two demonstration planting areas were established for native dune plants, and plantings were performed by local Brownie and Junior Girl Scout troops. Sand fencing was also placed next to the planted areas to protect them from public access. To date, areas cleared of Australian pines have showed signs of natural re-vegetation and replanted areas have shown a 95% survival rate of the dune plant material.

Short-Term Impacts:
In order to remove the Australian pines from the dunes, heavy machinery was used to cut and extract these invasive plants, including their roots, from the zone within 20 feet of the dune crest. Further behind the dune, cut-stump herbicide applications were used on the invasive plants (the pines and also Brazilian pepper plants) in a manner so as to minimize these treatments and amounts of herbicide applied. All removed exotic vegetation was stock-piled and burned on site in an area located at least 40 feet from the dune crest and also 40 feet from any live trees. Care was taken to avoid impacts to the wetlands adjacent to the dunes on site.

<u>Coral Reef Restoration</u>

--*Florida Keys National Marine Sanctuary, Florida*--
On April 25, 1997, the 47-foot trawler yacht *Voyager* struck an inshore patch of coral reef in the Florida Keys National Marine Sanctuary (FKNMS). This reef is a very popular spot for visitors and local marine education programs. The damaged area, which includes an inbound path, resting site, and outbound path caused by the salvage effort, totaled 452 m^2. Numerous coral heads were toppled, several areas scarified to bare substrate, and large quantities of vessel debris were deposited. The CRP partnered with FKNMS and the Mote Marine Center for Tropical Research (MMCTR) to restore this impacted coral reef. FKNMS staff mapped the site and removed pieces of debris. Coral transplants were taken to the site and permanently secured to the reef. Monitoring of the restoration site will document coral recovery progress and health, as well as mobile fauna utilizing the site.

Short-Term Impacts:
The greatest source of short-term impacts was the potential for doing additional damage to the site during the restoration process. This might include accidental contact with the already-damaged corals by divers, equipment and anchoring boats. Since divers were required to drill cores from existing corals to be transferred to the restoration site, there was also the potential to damage healthy, intact colonies. Extra care had to be taken in order to make as little disturbance

as possible. Cores also had to be stored in a safe environment to avoid physical damage that could occur during transfer. Healthy donor corals have been demonstrated to suffer little to no adverse impacts from coring and after a period of time are able to heal around the lesion created by taking a core.

A number of guidelines were followed during the restoration that required the knowledge and experience of skilled divers. Training for the divers included overviews of coral biology, reef ecology and the principles of habitat restoration. Standard diving principles were used throughout the restoration and included rules such as not touching any coral tissue, knowing the location of any equipment used so that tools such as hoses and drills would not accidentally cause more damage to the corals (Becker, pers. comm). Only two or three divers were allowed in the water during each dive to avoid any confusion, with one person to be top-side at all times for safety. When drilling cores, divers had to be very aware of their surroundings and be able to properly use the drill without losing control.

In sediment-laden areas, divers had to be conscious of staying off the bottom and avoiding stirring up any sediment with their fins. Expert boat handling consisted of placing the boat as close to the site as possible, with awareness of the surrounding wind and current. To avoid coral damage from the boats, mooring buoys were used to tie up to, in order to avoid dropping anchor. A dry method was used to transfer the coral cores from the existing site to the damaged site. This method consisted of placing individual cores into separate plastic bags with a few tablespoons of water. This method allows cores to stay moist while eliminating the potential for further damage from contact with other cores. FKNMS and MMCTR personnel have had extensive experience with coral handling and transplantation, and there were trained volunteers available to perform work as well.

<u>Kelp Forest Restoration</u>

--*Santa Monica Bay, California*--
The coastal kelp beds off Santa Monica, California, provide critical habitat for over 800 marine species that live upon, hide among, or feed on the kelp plants or drifting kelp. Kelp beds are increasingly being affected by a variety of man-made disturbances, such as pollution, land alteration and over-fishing. Recently there has been a growing concern over whether some of these fluctuations observed are solely due to natural causes or a result of human-induced causes. The Santa Monica BayKeeper began its kelp reforestation efforts in 1996, with investigations on kelp growth cycles and identification of the most effective techniques for restoration. The first year of the project investigated kelp growth cycles and planned for the restoration work. The second year focused on documenting the state of existing kelp forests and establishing trial restoration sites to identify the most effective restoration techniques.

The CRP and FishAmerica Foundation partnered with the Santa Monica BayKeeper in 1998 to begin restoring giant kelp forest habitat in the Santa Monica Bay to its historic acreage. The project is located at a 100 square foot site in Palos Verdes. Volunteer divers from local dive groups were trained in the areas of kelp ecology, restoration, and monitoring methods and assigned 10,000 square foot kelp sites that dive groups prepared, planted and maintained. Restoration methods included tying down mature drift kelp plants on vacant substrate, removing excess purple urchins from the site, seeding the area with spores from healthy plants, and tagging and monitoring the growth of kelp. The BayKeeper has already conducted more than 136 kelp dives and the original 100 square foot site has quickly grown to over 1,000 square feet.

Short-Term Impacts:
The greatest potential for short-term impacts was the possibility of divers doing more damage to the kelp beds during planting operations. Such impacts included damages to kelp beds from equipment, boats, anchoring as well as the divers themselves. To minimize these disturbances, the kelp reforestation program used a team of trained divers to restore kelp beds using low-impact techniques (Reed, pers. comm). These divers were required to have advanced certification and experience in diving in cold water, and were thoroughly trained to perform restoration and monitoring. Divers followed low-impact techniques, which included having no more than four divers per group, the use of appropriate dive equipment and tools, expert boat anchoring, job-specific diver training, and diver awareness. The utilization of advanced SCUBA students well trained in the planting techniques further reduced the potential for adverse impacts. BayKeeper also made it a priority for divers to keep a dive log during monitoring in order to keep track of oceanic conditions, fish takes, and pollution at the site including any animal deaths or turbidity plumes that may have occurred (Mohajerani 1999).

The restoration site was in an area of rocks and sand with little other kelp growth, so no damage to the surrounding habitat occurred as a result of the kelp reforestation activities. Trays of kelp spores were incubated *in situ* over sand areas through a sub-surface buoy system. The cinderblocks used to anchor sub-surface buoys were located in the sand, and the entire system is removed from the site when not in use. Rubber bands were used to anchor juvenile kelp plants to rock outcrops until holdfasts became attached, so there were no permanent structures needed for attachment of the maturing kelp plants. Purple urchins are often found in kelp forests and often chew through kelp holdfasts in search of food, destroying the plants. In order to reestablish kelp beds, purple urchins were translocated from the restoration site to barrens. This had a positive impact on the surrounding ecosystem, enabling other kelp inhabitants/herbivores to re-establish themselves in the kelp beds (Fleischli 1999).

<u>Mangrove Forest Restoration</u>

--Indian River Lagoon, Florida--
Brazilian pepper (*Schinus terebinthifolius*) is an exotic plant species that was introduced to Florida as an ornamental shrub. The plant is extremely adaptive and has been invading and replacing native mangrove habitats throughout the Everglades region. In an effort to restore mangrove and salt marsh habitats to Indian River Lagoon, the Marine Resources Council of East Florida has organized "Pepperbusters," a coalition of volunteer groups working to remove Brazilian pepper and replant native shoreline vegetation. The CRP has awarded funds to coordinate the Pepperbusters' and mangrove replanting activities, which restored and maintained a mile of shoreline in four counties during 1996-97. In addition, the funds supported the development of Pepperbusters' training materials for distribution to other volunteer groups throughout Florida. Through its partnership with the Pepperbusters program, NOAA Fisheries hopes to improve fish habitat for estuarine and offshore species, while kindling wider public interest in restoration of Florida's coastal habitats.

Short-Term Impacts:
There are two possible adverse affects that were addressed during the implementation of the project. The first is the possibility of destroying existing mangrove habitat. Brazilian peppers grow in close association with several native plants of Florida such as mangroves, dahoon holly, and buttonwood (Barile & Perez-Bedmar 1998). These native plants are often mistaken for Brazilian pepper during restoration efforts because they typically grow in the same type of habitat. Another possible impact of the restoration involved the actual removal of Brazilian pepper, which required the application of herbicides to target species. While herbicides are often effective in the removal of invasive species, there are potential environmental factors that have to be considered in their application (i.e., rainfall and wind; Barile & Perez-Bedmar 1998). Herbicides that are applied during rainy periods may leach into the surrounding soil and could damage local, non-invasive plants as well. Applying herbicides in windy conditions may also cause unintentional damage to non-invasive plants. The time of application is also an important factor to consider for the herbicide to be most effective. Treatment should be accomplished before seeds ripen, in May or August through October, since ripe seeds from a treated tree are still able to germinate.

In order to prevent the destruction of existing mangrove habitats, volunteers were thoroughly trained to distinguish between the Brazilian pepper and native plant species. Training also included methods of proper application of herbicides and of planting native mangrove plants. A "common-sense" approach to minimize physical damage to non-invasive plants (such as avoiding walking and trampling on them) in the adjacent areas was utilized. Also, to avoid unintentional damage to native plants, point application of herbicides was utilized with a spray bottle. The two Pepperbusters' workdays occurred in October, 1996 and May, 1997, before the Brazilian pepper seeds ripened.

5.3 Consequences of the Third Alternative – Implement Restoration of Salt Marshes

Habitat restoration under a very narrowly-defined CRP would focus on salt marshes. A few large projects would be implemented. Impacts under the Third Alternative are similar to those described for marsh restoration described under the Preferred Alternative, except they would temporarily impact and beneficially provide habitat for juvenile fishes, birds, and other organisms. Although CRP funding and effort would be focused on improving salt marshes, degradation and loss of other habitats would continue. Attempting to prioritize restoration activities by identifying significant individual sites/marshes for restoration would be difficult, as opposed to restoring habitats using a comprehensive, regional approach.

Short-term impacts:
Heavy machinery would be used to move sediments to significantly change elevation; this activity would likely cause damage to adjacent marsh habitat. Sediment would be reworked and added, causing a temporary increase in turbidity and decreasing aquatic habitat quality. Also, there would be potential risk of incorporating contaminated sediments into the marsh structure, this possibility would likely require sediment testing to ensure clean sediments are used (additional time and cost would be incurred).

6.0 COORDINATION WITH OTHERS

The Community-Based Restoration Program is encouraging partnerships with Federal agencies, states, local governments, non-governmental and non-profit organizations, businesses, industry and schools to carry out locally important habitat restorations to benefit living marine resources. The CRP has partnered with the National Fish and Wildlife Foundation (NFWF), the American Sportfishing Association (ASA), Restore America's Estuaries (RAE), the National Fisheries Institute (NFI), the U.S. Forest Service (USFS), and the Environmental Protection Agency (EPA) Five Star program to implement 179 restoration projects between 1996 and 2000.

The CRP is based on local community involvement throughout restoration planning, implementation, and follow-up. Public comments on proposed CRP actions and project proposals are solicited through Federal Register notices. CRP and other NOAA fisheries staff members have met with private entities to discuss small-scale habitat restoration on their lands. Internal NOAA resources, as well as external partnerships, are vital to the CRP's success.

7.0 LIST OF PREPARERS

Russell J. Bellmer, Marine Ecologist
Robin J. Bruckner, Fishery Biologist
Christopher Doley, Fishery Biologist
Paula G. Kullberg, Physical Scientist
Nancy Lou, Community-Based Program Assistant
P. Thomas Pinit, Fishery Biologist

8.0 REFERENCES

Bahr, L. M. and W. P. Lanier. 1981. The ecology of intertidal oyster reefs of the South Atlantic coast: a community profile. U. S. Fish and Wildlife Service FWS/OBS/81.15. Washington D.C. 105 pp.

Barile, D. and Perez-Bedmar, M. 1998. *A Field Manual for Invasive Plant Removal and Mangrove Restoration*. Prepared by the Marine Resources Council for the National Marine Fisheries Service Restoration Center. Rockledge, FL.

Becker, L.C. 2001 12 Jan. Personal communication. NOAA/NMFS Office of Protected Resources, Silver Spring, MD.

Cintron-Molero, G. 1992. "Restoring Mangrove Systems." Chapter 6. *In*, G. W. Thayer, Ed., *Restoring the Nation's Marine Environment*. Maryland Sea Grant College, College Park, MD. Pp. 223-277.

Cowen, R. K, C. R. Agegian, and M. S. Foster. 1982. The maintenance of community structure in a central California kelp forest. *J. Exp. Mar. Biol. Ecol*. 64: 189-201.

Dayton, P. K. and M. J. Tegner. 1984. Catastrophic storms, El Nino, and patch stability in a southern California kelp community. *Science* 224: 283-285.

Druel, L. D. 1970. The pattern of *Laminariales* distribution in the northeast Pacific. *Phycologia* 9: 237-247.

Fleischli, S. 1999. *Final Report for the Kelp Reforestation Project*. Submitted to the FishAmerica Foundation by the Santa Monica BayKeeper, Marina del Rey, CA.

Fonseca, M. S. 1992. "Restoring Seagrass Systems in the United States." Chapter 3. *In*, G.W. Thayer, Ed., *Restoring the Nation's Marine Environment*, Maryland Sea Grant College, College Park, MD. Pp. 79-110.

Foster, M. S. and D. R. Schiel. 1985. The ecology of giant kelp forests in California: a community profile. U. S. Fish and Wildlife Service. Biol. Rep. 85: 1-152.

Guilcher, A. 1987. *Coral reef geomorphology*. Wiley, New York. 228 pp.

Heald, E. J. 1969. The production of organic detritus in a south Florida estuary. Ph.D. Dissertation, University of Miami, Florida.

Hoogesteger, H. 2001 23 Jan. Personal communication. South Coast/Lower Rogue Watersheds Council, Gold Beach, OR.

Hunt, C. 1988. Down by the river. Washington, D. C., Island Press.

Kennedy, V. S., and L. P. Sanford. 1975. Characteristics of Relatively Unexploited Beds of the Eastern Oyster, *Crassostrea virginica*, and Early Restoration Programs. Chapter 2. *In*, M. W. Luckenbach, R. Mann, and J. A. Wesson, Eds., Oyster Reef Habitat Restoration: A Synopsis and Synthesis of Approaches. Pp. 25-46.

Maragos, J. E. 1992. Restoring Coral Reefs with Emphasis on Pacific Reefs. Chapter 5. *In*, G.W. Thayer, Ed., *Restoring the Nation's Marine Environment*, Maryland Sea Grant College, College Park, MD. Pp. 141-221.

Mitsch, W.J. and J.G. Gosselink. 1993. *Wetlands*. New York, Van Nostrand Reinhold.

Mohajerani, L. 1999. *A Kelp Monitoring Manual for Divers*. Prepared by the Santa Monica BayKeeper, Marina del Rey, CA.

Murphy, M.L. 1995. Forestry impacts on freshwater habitat of anadromous salmonids in the Pacific Northwest and Alaska – requirements for protection and restoration. NOAA Coastal Ocean Program, Decision Analysis Series No. 7. 156 pp.

National Research Council. 1995. Wetlands: Characteristics and Boundaries. Committee on Characterization of Wetlands, Water Science and Technology Board, Board on Environmental Studies and Toxicology. Commission on Geosciences, Environment, and Resources. National Academy Press, Washington, D.C.

National Oceanic and Atmospheric Administration (NOAA). 1998. "Population: Distribution, Density and Growth" by Thomas J. Culliton. NOAA's State of the Coast Report. Silver Spring, MD: NOAA. See at: http://www.noaa.gov/

National Safety Council, Environmental Health Center. 1998. *Coastal Challenges: A Guide to Coastal and Marine Issues*. Prepared in conjunction with Coastal America. Washington D.C.

National Oceanic and Atmospheric Administration (NOAA). 2001. See webpage at http://www.nmfs.gov/ Last updated Jan. 19, 2001.

Odum, W. E. 1971. Pathways of energy flow in a south Florida estuary. University of Miami Sea Grant Bulletin 7. 162 pp.

Pritchard, D.W. 1967. "What is an estuary: physical viewpoint." pp. 3-5. *In*, G. F. Lauff, Ed., *Estuaries*. American Association for the Advancement of Science, Publication 83, Washington, D.C.

Reed, B. 2001 16 Jan. Personal communication. The Santa Monica BayKeeper, Marina del Rey, CA.

Reed, D. C. and M. S. Foster. 1984. The effects of canopy shading on algal recruitment and growth in a giant kelp forest. *Ecology* 65: 937-948.

Restore America's Estuaries (RAE). 2000a. "The economic value of estuaries." See at: http://www.estuaries.org/economics.html

RAE. 2000b. "How much estuary habitat have we lost?" See at: http://www.estuaries.org/loss.html

Russell, R. J. 1967. "Origins of Estuaries," pp. 93-99. *In*, G. F. Lauff, Ed., *Estuaries*. American Association for the Advancement of Science, Publication 83, Washington, D.C.

Schiel, D. R., and M. S. Foster. 1992. "Restoring Kelp Forests." Chapter 7. *In*, G. W. Thayer, Ed., *Restoring the Nation's Marine Environment*. Maryland Sea Grant College, College Park, MD. Pp. 279-342.

Thayer, G. W., W. J. Kenworthy, and M. S. Fonseca. 1984. The ecology of seagrass meadows of the Atlantic Coast: A community profile. U. S. Fish and Wildlife Service, FWS/OBS-84/02. 147 pp.

Twilley, R. R. 1982. Litter dynamics and organic carbon exchange in black mangrove (*Avicennia germinans*) basin forests in a southwest Florida estuary. Ph.D. Dissertation, University of Florida, Gainesville.

US Coral Reef Task Force. 2000. National Action Plan to Conserve Coral Reefs. Washington DC.

Wantuck, R. 2000 30 Mar. Personal communication. NOAA/NMFS Office of Habitat Conservation, Southwest Region, Santa Rosa, CA.

Wiens, H. J. 1962. *Atoll environment and ecology*. Yale University Press, New Haven. 532 pp.

Wesson, J. 2001 16 Jan. Personal communication. Virginia Marine Resources Commission, Newport News, VA.

Wolf, K. 2001 25 Jan. Personal communication. Youth Restoration Corps, Kenai, AK.

Wood , E. J. F., W. E. Odum, and J. C. Zieman. 1969. Influence of sea grasses on the productivity of coastal lagoons. pp. 495-502. *In*, A. Ayala Castanares and F. B. Phleger , Eds. *Coastal Lagoons*. Universidad Nacional Autonoma de Mexico, Ciudad Universitaria, Mexico, D. F.

Zedler, J. B. 1992. "Restoring Cordgrass Marshes in Southern California." Chapter 1. *In*, G.W. Thayer, Ed., *Restoring the Nation's Marine Environment*, Maryland Sea Grant College, College Park, MD.

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

In compliance with the National Environmental Policy Act (NEPA), an Environmental Assessment has been prepared for the implementation of NOAA Fisheries' Community-Based Restoration Program (CRP) of the Office of Habitat Conservation. Activities under the CRP are designed to have a long-term beneficial impact on living marine resources. Any adverse impacts associated with CRP restoration projects are expected to be minimal, localized, and short-term. All best management practices will be utilized to ensure that adverse impacts are avoided or minimized. The environmental review process led me to conclude that this action will not have a significant effect on the human environment. Therefore, an Environmental Impact Statement is not required by Section 102 (2)(C) of NEPA or its implementing regulations. A copy of the environmental assessment and supporting documentation are available from the Office of Habitat Conservation, NOAA Fisheries, Silver Spring, MD 20910.

Date: ___________________

Signature: ________________________

APPENDICES

APPENDIX A – APPLICABLE ENVIRONMENTAL LAWS AND COMPLIANCE

Anadromous Fish Conservation Act, 16 U.S.C. 757a-757g

Restoration activities under this program will help to ensure the conservation of anadromous and Great Lakes fishery habitat and resources.

Clean Air Act, 15 U.S.C. 792, 42 U.S.C. 215 note, 1857-1858a, 4362, 7401-7672; 49 App. 1421, 1430; 50 App. 456

Activities under this program will not result in an increase in the discharge of air pollutants.

Clean Water Act, 33 U.S.C. 1251 *et seq.*

Activities under this program will not result in a change in the discharge of water pollutants.

Coastal Zone Management Act (CZMA), 16 U.S.C. 1451-1464

Activities under this program will be consistent, to the maximum extent practicable, with the enforceable policies of approved state coastal management programs (CMP).

Endangered Species Act, 7 U.S.C. 136; 16 U.S.C. 4601-9, 460k-1, 668dd, 715I, 715a, 1362, 1371-1372, 1402, 1531-1544

Activities under this program will not have an adverse effect on any Federally-listed species or their habitats.

Estuary Protection Act, 16 U.S.C. 121 *et seq.*

Activities under this program will not have an adverse effect on any estuary. These activities will help to restore and improve some habitats within estuaries.

Fish And Wildlife Conservation Act, 16 U.S.C. 2901-2912

Activities under this program will encourage the conservation of non-game fish and wildlife.

Fish And Wildlife Coordination Act, 16 U.S.C. 661-666c

Activities under this program will encourage the enhancement of fish and wildlife resources.

Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. 1801 *et seq.*

Activities under this program will encourage the conservation and restoration of essential fish habitat and resources.

Marine Mammal Protection Act, 16 U.S.C. 1361-1326, 1371-1384 note, 1386-1389, 1401-1407, 1411-1418, 1421-1421h

Activities under this program will not have an adverse effect on marine mammals.

Migratory Bird Conservation Act, 16 U.S.C. 715 to 715r

Activities under this program will not have an adverse effect on migratory birds or programs under this Act.

National Environmental Policy Act, 42 U.S.C. 4321, 4331-4335, 4341-4347

An Environmental Assessment has been prepared and environmental review has occurred under this Act.

National Historic Preservation Act, 16 U.S.C. 470 *et seq*.

Activities under this program will be consistent with guidelines for preservation, restoration and maintenance of the historic and cultural environment of the Nation.

APPENDIX B – EXECUTIVE ORDERS AND COMPLIANCE

Executive Order Number 11514 (34 FR 8693) - Protection And Enhancement Of Environmental Quality

The activities under this program will help to ensure the enhancement of environmental quality.

Executive Order Number 11990 (42 FR 26961) - Protection Of Wetlands

The activities under this program will help to ensure the conservation of wetlands and the services that they provide.

Executive Order Number 12962 (60 FR 30769) - Recreational Fisheries

The activities under this program will help to ensure the conservation of recreational fisheries habitats and the services that they provide.

Executive Order Number 13089 (63 FR 32701) **–** Coral Reef Protection

The activities under this program will help to ensure the conservation of coral reefs and the services that they provide.

Executive Order Number 12898 (59 FR 7629) - Environmental justice in minority and low-income populations

The activities under this program will help to ensure the enhancement of environmental quality in all populations.

Executive Order Number 13093 (63 FR 40357) - American Heritage Rivers

The activities under this program will help to ensure the enhancement of environmental quality in Heritage Rivers.

Executive Order Number 13112 (64 FR 6183) - Invasive species

The activities under this program will help to ensure the enhancement of environmental quality in coastal areas by the removal of invasive species.

Executive Order Number 13158 (65 FR 34909) - Marine Protected Areas

The activities under this program will help to ensure the enhancement of environmental quality in marine protected areas.

Executive Order Number 13186 (66 FR 3853) - Migratory bird protection

The activities under this program will help to ensure the enhancement of environmental quality in coastal areas that will benefit migratory birds.

Executive Order Number 12996 (61 FR 13647) - Plants; conservation and management

The activities under this program will help to ensure the enhancement of environmental quality in coastal areas by the management and conservation of native species.

APPENDIX C – LIST OF EXISTING COMMUNITY-BASED RESTORATION PROJECTS

In 1996, the NOAA Restoration Center began its Community-Based Restoration Program, which provides funding, through a competitive process, for local efforts to restore coastal habitat. The purpose of the program is to promote coastal stewardship and a conservation ethic among coastal communities while fostering the development of restoration partnerships and expertise among NOAA Fisheries personnel. Since its inception, the Community-Based Restoration Program has partnered on 179 projects, many of which are ongoing today.

Riparian habitat restoration:

FY00	Project Name	Project Size	State
1995	Brush Creek Restoration Project	1.5 stream miles	CA
1996	Pratt Farm Restoration Project	1 mile	DE
1999	Campbell Creek Restoration	0.01 acres + 0.01 miles of stream bank	AK
1999	East Fork Salmon River Stewardship Implementation	3 acres	ID
1999	Restoration of Kohanaiki Anchialine Ponds	N/A	HI
2000	Anchor River Riparian Restoration	0.02 stream miles	AK
2000	Eagle River Watershed Wonders	0.03 stream miles	AK
2000	Adobe Creek Exclusionary Fencing	4.2 stream miles	CA
2000	Riparian Restoration at Mill Creek and Tributaries	20 acres	CA
2000	Morro Bay National Estuary Riparian Restoration	0.3 stream miles	CA
2000	Lower Turner Creek Fencing and Riparian Restoration	1.3 stream miles	CA
2000	Norton Creek Wildlife Area Riparian Restoration	1.7 acres	CA
2000	Restoring Wetland, Estuarine and Riparian Habitat	N/A	CA
2000	Control of Water Chestnut in the Connecticut and Hockanum Rivers	10.0 acres	CT
2000	Hanalei Watershed Riparian Restoration	0.57 stream miles	HI
2000	Jefferson Parish Marsh Restoration	100 acres	LA
2000	Marstons Mills Riparian Restoration	0.2 stream miles	MA
2000	Bronx River Restoration	4 stream miles	NY
2000	Applegate River Watershed Riparian Restoration	N/A	OR
2000	Expanded Wetland Restoration Program	15.0 acres	VA
2000	Winters Creek Riparian Revegetation Project	0.7 acres	WA
2000	Puget Creek Riparian Restoration Project	0.4 stream miles	WA

Marsh restoration:

FY00	Project Name	Project Size	State
1996	Pepper Buster and Johnny Mangrove Seed	15 acres	FL
1997	Argilla Road--Restoration of a Tidally-Restricted Salt Marsh	15 acres	MA
1997	Tampa Bay High School Wetland Nursery Program I	0.006 acres/nursery	FL
1998	Tampa Bay High School Wetland Nursery Program II	0.006 acres/nursery	FL

1998	Community-Based Wetland Restoration and Outreach Education at Fort McHenry	3 acres	MD
1998	Eastern Neck Salt Marsh Monitoring	4 acres	MD
1999	Restoration of Coastal Wetland Habitat with Use of Prescribed Burning	N/A	AL
1999	Oleta River Wetland Restoration Project	29.5 acres	FL
1999	Shorekeeper Program	N/A	NC
1999	Winsegansett Marsh Restoration	N/A	MA
1999	Eastern Neck Salt Marsh Restoration	4 acres	MD
1999	Hashamomuck Pond Wetland Restoration	2 acres	NY
1999	Pilot Wetland Restoration in Stony Brook Harbor	1 acre	NY
1999	Pattersquash Creek Salt Marsh Restoration	0.23 acres	NY
1999	Galveston Bay Marsh Restoration Weekend	10 acres	TX
1999	Tampa Bay Wetland Nursery Program Expansion	0.006 acres/nursery	FL
2000	Ballona Lagoon Wetland Restoration	3 acres	CA
2000	Bahia Grande Restoration Nursery	N/A	TX
2000	Coast 2050	N/A	LA
2000	Pepper Cove Impoundment Restoration	10 acres	FL
2000	North Apollo Beach Habitat Restoration	35 acres	FL
2000	Restoring Tampa Bay with Community Volunteers	25 acres	FL
2000	Eastern Point Salt Marsh Restoration	9.4 acres	MA
2000	Pelican Landing Coastal Riparian Restoration	8 acres	MS
2000	Ice Plant Island Marsh Restoration	0.5 acres	NC
2000	Oyster Reefs, SAV and Marsh Restoration for Shoreline Stabilization and Improved Ecological Community	0.05 acres	VA
2000	Little River Saltmarsh Restoration	150 acres	NH
2000	Awcomin Marsh Ecosystem Restoration	27 acres	NH
2000	South Mill Pond Multi-habitat Restoration	N/A	NH
2000	Hempstead Harbor Trail Wetland Restoration	0.14 acres	NY
2000	John M. O'Quinn I-45 Estuarial Corridor	6.5 acres	TX
2000	Marsh Mania	15 acres	TX
2000	Hamm Creek Estuary	1 acre	WA
2000	Duwamish Estuary Restoration Project	1 acre	WA
2000	Massachusetts Wetlands Restoration Projects	N/A	MA
2000	Restoring Tidal Flow to Salt Marshes	35 acres	ME

Submerged aquatic vegetation (SAV) restoration:

FY00	Project Name	Project Size	State
1996	Community-Based Restoration of SAV in the Chesapeake Bay	.02 acres	MD
1996	Restoration of Submerged Aquatic Vegetation to Delaware's Inland Bays	1-2 acres	DE

1997	Community-Based Propagation and Restoration of SAV Beds in the Chesapeake Bay	0.17 acres	MD
1999	Seagrasses in Classes: Revegetating Eelgrass in Narragansett Bay	0.02 acres	RI
2000	Bay Grasses in Classes	N/A	MD
2000	Developing a Manual and Video for Community-Based Restoration of Eelgrass Habitat	N/A	NH
2000	Community-Based Eelgrass Restoration at Back Creek	2 acres	VA
2000	Eelgrass Restoration in Little Egg Harbor	1.1 acres	NJ

Shellfish/Artificial reef restoration:

FY00	Project Name	Project Size	State
1997	Applying a Local Partnership to Restore an Oyster Reef in the Chesapeake Bay	0.5 acres	VA
1998	Education-Based Oyster Reef Restoration in Upper Chesapeake Bay	2 acres	MD
1998	Oyster Reef Restoration in the Lafayette River	0.5 acres	VA
1999	San Francisco Bay Oyster Restoration	862 acres	CA
1999	ACE Basin Shellfish Restoration	N/A	SC
1999	Elizabeth River Restoration	1 acre	VA
2000	Artificial Reef Creation in Lake Pontchartrain	1 acre	LA
2000	North Shore Soft-Shell Clam Ecosystem Restoration	10 acres	MA
2000	Coastal Wetland Restoration	N/A	MD
2000	Restore Mid-Atlantic Reef/Wreck Habitat off Ocean City	10 acres	MD
2000	South Carolina Oyster Habitat Restoration	N/A	SC
2000	Nanticoke River Oyster Project	N/A	MD
2000	Oyster Reef Restoration Projects	0.005 acres	MD/VA
2000	Hudson-Raritan Oyster Restoration Project	N/A	NY/NJ
2000	Oyster Restoration	N/A	NY/NJ

Shoreline restoration:

FY00	Project Name	Project Size	State
1999	Blind Creek Park Restoration	62.38 acres	FL
1999	Cedar Key - Pepper Free	N/A	FL
2000	Blind Creek Park Sea Turtle Habitat Restoration	30.0 acres	FL
2000	Shoreline Restoration Demonstration Project	N/A	NC

Coral reef restoration:

FY00	Project Name	Project Size	State
1999	Restoration of the Voyager Grounding Site	10560 acres	FL
1999	Establishing Stony Coral Nurseries for Reef Fishery Habitat Restoration	N/A	FL

2000	Removal of Waste Tires: Reef Fishery Habitat Restoration	N/A	FL
2000	Rehabilitation of EFH in the Florida Keys National Marine Sanctuary: Treating Coral Colonies with Black Band Disease	N/A	FL
2000	Hawaii Reef Monitoring and Clean-up	Survey of 370 acres	HI

Kelp forest restoration:

FY00	Project Name	Project Size	State
1998	Kelp Reforestation Project In Southern California	0.25 acres	CA
1998	Kelp Reforestation Project In Southern California II	0.25 acres	CA
2000	Kelp Restoration Project	0.07 acres	CA
2000	Kelp Habitat Restoration	0.07 acres	CA

Mangrove forest restoration:

FY00	Project Name	Project Size	State
2000	Indian River Lagoon Shoreline Restoration	N/A	FL
2000	Egret Island Restoration	4.0 acres	FL
2000	Mangrove March Impoundment Habitat Rest. Pilot Project	less than 0.5 acres	Fl

Anadromous fish habitat restoration:

FY00	Project Name	Project Size	State
1996	Removal of Streambed Sediment to Improve Salmon Spawning Habitat in Duck Creek	less than 0.5 acres	AK
1997	Haskell Slough Enhancement Project	1.14 stream miles	WA
1998	Restoration of Water Quality and Anadromous Fish Habitat in Duck Creek	less than 0.5 acres	AK
1998	Russian River Youth Restoration Corp Project	0.4 stream miles	AK
1998	Parker River Anadromous Fish Restoration	less than 0.5 acres	MA
1999	Little Susitna River Project	0.2 stream miles	AK
1999	San Gregorio Stream Bank Stabilization	5 acres	CA
1999	Willow Creek Anadromous Fish Enhancement	1.0 stream miles	CA
1999	Crooked Creek Irrigation Ditches	2 acres	ID
1999	Idaho Salmon and Steelhead Days	less than 0.5 acres	ID
1999	Real Change Rises Up in the Salmon River Watershed	2.2 miles	ID
1999	Fish Habitat Improvements on Deer and Gate Creeks	12 acres + 3 miles of stream bank	OR
1999	Mount Scott Creek Habitat Restoration	0.3 stream miles	OR
1999	Ames Creek Habitat Restoration	1.5 stream miles	OR
1999	White River Watershed Restoration for Atlantic Salmon	0.76 miles	VT
1999	Nooksack Basin Restoration	15 stream miles	WA
1999	Citizens' Action for Habitat Restoration	0.38 stream miles	WA
1999	Finney Creek Community Restoration for Salmon	1.5 stream miles	WA

1999	Lund's Gulch Restoration Project	1.5 stream miles	WA
1999	Newaukum Creek Restoration Project	0.04 stream miles	WA
1999	Glade Bekken Stream Restoration	0.5 acres	WA
1999	Involving Youth in Salmon Habitat Restoration	less than 0.5 acres	WA
1999	Haskell Slough Salmon Habitat Restoration	less than 0.5 acres	WA
2000	Russian River Restoration	0.4 stream miles	AK
2000	Little Susitna River Restoration Project	0.4 stream miles	AK
2000	Mill Creek-Channel Restoration Project 2001	less than 0.5 acres	CA
2000	Green Valley French Drain	0.02 stream miles	CA
2000	McCoy Creek Stream Restoration	0.07 stream miles	CA
2000	Orr's Creek Restoration	less than 0.5 acres	CA
2000	Fisheries Restoration Through Coastal Wetland Creation	less than 0.5 acres	FL
2000	Sebasticook River - Plymouth Pond Fisheries Rest. Project	Less than 0.5 acres	ME
2000	Anderson Creek Marsh Restoration Project at South Slough National Estuarine Research Reserve	0.04 acres	OR
2000	Yaquina Estuarine Wetland Restoration	0.30 stream miles	OR
2000	Walla Walla Habitat Restoration Project	5.0 stream miles	OR
2000	Mill Creek Watershed Restoration	Less than 0.5 acres	OR
2000	Ten Mile River Anadromous Fish Restoration	Less than 0.5 acres	RI
2000	Potter Pond Restoration	Less than 0.5 acres	RI
2000	North Fork Newaukum Creek Restoration Project	0.51 stream miles	WA
2000	Lorenzan Creek Salmon Enhancement Project	Less than 0.5 acres	WA
2000	Groeneveld Slough Restoration	Less than 0.5 acres	WA
2000	Muck Lake/Lacamas Creek Restoration	0.3 stream miles	WA
2000	Plant a Tree, Save a Fish Project	N/A	WA
2000	Squalicum Creek Fish Habitat Restoration	Less than 0.5 acres	WA

** Projects of "Less than 5 acres" indicate small-scale projects that occur at points along streams and have benefits for anadromous fish both upstream and downstream from the site. Exact project sizes unknown.

Anadromous fish passage restoration:

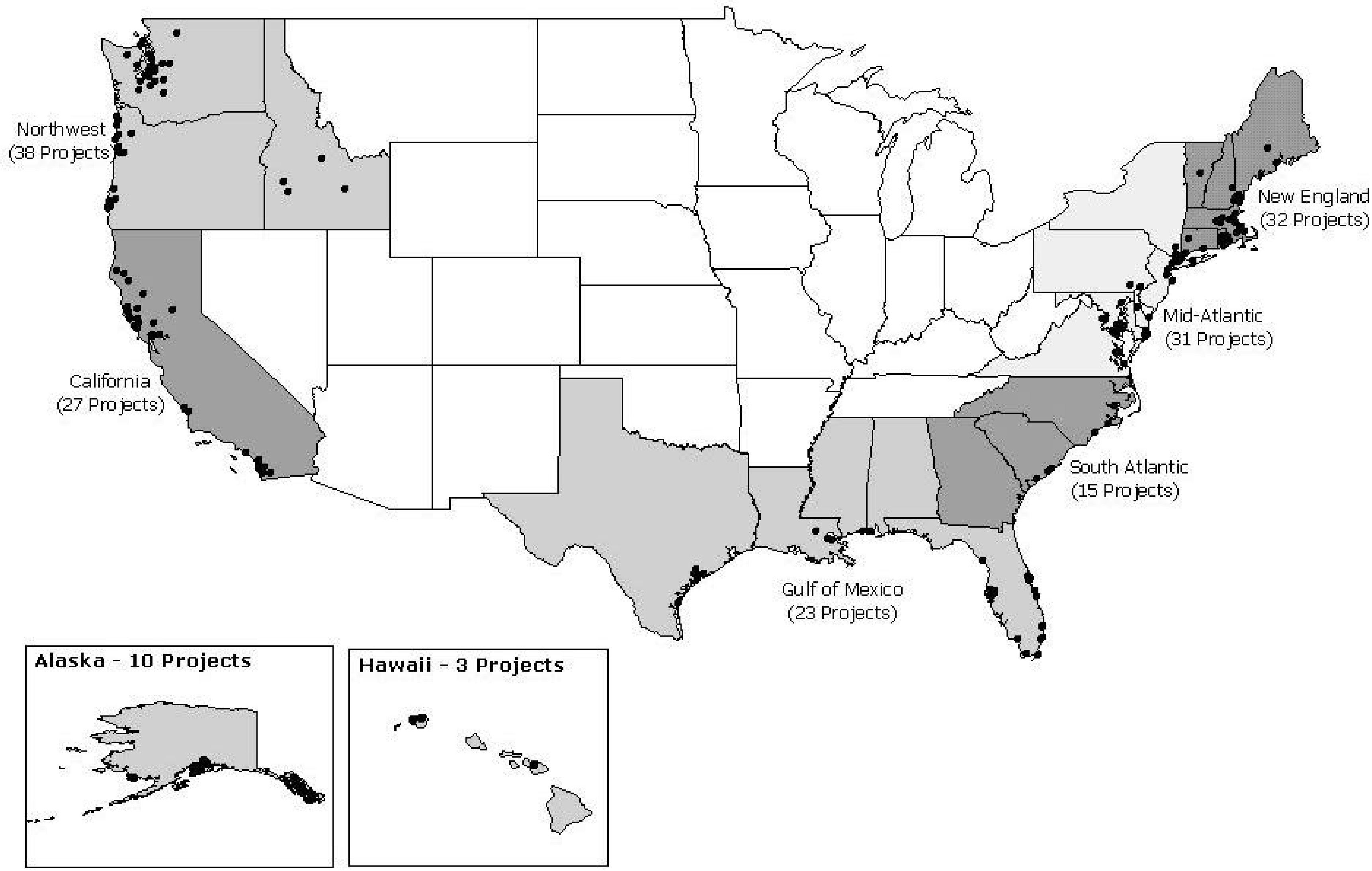
FY00	Project Name	Project Size	State
1996	Adobe Creek Culvert Project	less than 0.5 acres	CA
1998	Fiock Dam Removal Project	less than 0.5 acres	CA
1998	Dutch Bill Creek Fish Ladder Renovation Project	Less than 0.5 acres	CA
1999	Grassy Creek Fish Passage Restoration	less than 0.5 acres	CA
1998	The Cooper River Fishway Restoration Project	Less than 0.5 acres	NJ
1998	Farmer's Ditch Fish Passage and Stream Flow Improvement Project	less than 0.5 acres	OR
1998	Drobkiewicz Dam Removal	less than 0.5 acres	OR
1998	Mussachuck Creek Fishway at Echo Lake	Less than 0.5 acres	RI
1999	Centennial Park King Salmon Stairs Project	Less than 0.5 acres	AK
1999	Roys Dam Fishway Project	Less than 0.5 acres	CA

1999	Ed Bill's Pond Fishway Restoration	Less than 0.5 acres	CT
1999	Pilgrim Trail Herring Restoration Project	Less than 0.5 acres	MA
1999	Hartman Irrigation Dam Removal	less than 0.5 acres	OR
1999	Restoring Salmon Runs on the Southern Oregon Coast	.25 acres	OR
1999	Upper Puyallup Culvert Projects	less than 0.5 acres	WA
2000	Fife Creek Dam Removal and Habitat Enhancement Project	0.42 stream miles	CA
2000	Carriger Creek Fish Passage Project	less than 0.5 acres	CA
2000	The Sacramento River Fish Screen Program	less than 0.5 acres	CA
2000	Rippowam/Mill River Fishway	less than 0.5 acres	CT
2000	Spaulding Dam Bypass on the Sawmill River	less than 0.5 acres	MA
2000	Paskamansett River Fishway Modification	less than 0.5 acres	MA
2000	Agawam River Herring Run Rehabilitation	less than 0.5 acres	MA
2000	Parker River Fishway Restoration (Central Street)	Less than 0.5 acres	MA
2000	Kennard Bog Fishway Replacement	Less than 0.5 acres	MA
2000	Wiswall Dam Fish Ladder	Less than 0.5 acres	NH
2000	McGoldrick Dam Removal	Less than 0.5 acres	NH
2000	Cuddlebackville Dam Removal, Neversink River	Less than 0.5 acres	NY
2000	Clackamas County Fish Passage Improvements Project	Less than 0.5 acres	OR
2000	Fairmount Fishway	Less than 0.5 acres	PA
2000	Good Hope Dam	Less than 0.5 acres	PA
2000	Kickemuit Reservoir Fish Ladder	Less than 0.5 acres	RI
2000	Puget Creek Fishway Project	Less than 0.5 acres	WA

** Projects of "Less than 5 acres" indicate small-scale projects that occur at points along streams and have benefits both upstream and downstream from the site. Exact project sizes unknown.

APPENDIX D - MAP OF EXISTING COMMUNITY-BASED RESTORATION PROJECTS

NOTE: There are 179 projects that have secured funding to date.



Federal Register / Vol. 65, No. 62 / Thursday, March 30, 2000 / Notice

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 990907250–0062–02; I.D.063099B]

RIN 0648–ZA70

Community-based Restoration Program Guidelines

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notification of Program Guidelines.

SUMMARY: NOAA Fisheries began a new Community-based Restoration Program (Program) in 1996 to encourage local efforts to restore fish habitats. Since that time, NOAA has provided funding to 83 small-scale habitat restoration projects around coastal America. The Program is a systematic national effort to encourage partnerships with Federal agencies, states, local governments, non governmental and non-profit organizations, businesses, industry and schools, to carry out locally important habitat restorations to benefit living marine resources. The Program has developed formal guidelines that will expand the financial instruments available to accomplish furtherance of this mission. This announcement provides program guidelines for the implementation of the Program in FY 2000 and beyond, which incorporates comments by the public and NOAA. This is not a solicitation of project proposals.

DATES: Guidelines are effective March 30, 2000.

ADDRESSES: Send comments to Director, NOAA Restoration Center, National Marine Fisheries Service, 1315 East West Highway (F/HC3), Silver Spring, MD 20910–3282.

FOR FURTHER INFORMATION CONTACT: Christopher D. Doley, (301) 713–0174, or by e-mail at Chris.Doley@noaa.gov.

SUPPLEMENTARY INFORMATION: Details concerning the justification for and development of this notification are provided at 64 FR 53339, October 1, 1999, and are repeated here. In that document, comments were sought on modifications to the Program that would allow greater flexibility to support community-based habitat restoration projects.

Comments and Responses

Comments were few, and all commenters supported the proposed modifications to the existing Program. Comments consisted of minor additions of explanatory detail or minor changes of word choices to clarify points. A summary of the comments and description of changes made to the proposed guidelines follows:

The eligibility requirements section was reworded to clarify that Federal agencies may be designated by a project sponsor as recipients of funding for selected projects, but may not apply for funding directly. To protect the Federal investment, projects on private lands will need to provide assurance that the project will remain intact throughout the useful life of the project, instead of the proposed rule's requirement that project proponents demonstrate a minimum 10-year conservation easement. Partnership arrangements will be pursued on a national level, as well as on a broad-based geographic and regional level, to be more inclusive. Text on pre-application format and process and on full proposal cost estimate requirements was deleted, as this information is presented in great detail in the NOAA grants application package available to all applicants and discussed in solicitations. Under ''evaluation criteria'', item number 3, Community Commitment and Partnership Development, the text ''qualified youth conservation or service corps'' has been added as an example of significant community involvement. And finally, to address environmental justice concerns expressed by one commenter and assure that all residents and citizens affected by the project have the opportunity to participate, under ''evaluation criteria,'' text was added to state that proposed projects may be evaluated on their ability to demonstrate that they are incorporated into a regional or community planning process.

Background

Habitat loss and degradation are major, long-term threats to the sustainability of the Nation's fishery resources. Over 75 percent of commercial fisheries and 80 to 90 percent of recreational marine and anadromous fishes depend on estuarine or coastal habitats for all or part of their life-cycles. Protecting existing, undamaged habitat is a priority and should be combined with coastal habitat restoration to enlarge and enhance the functionality of degraded habitat. Restored coastal habitat will help rebuild fisheries stocks and recover threatened or endangered species. Restoring coastal habitats will help ensure that valuable resources will be available to future generations of Americans.

The guidelines that follow reflect modifications to the Program that allow greater flexibility to support community-based habitat restoration projects. The purpose of this document is to provide an outline of the goals, objectives, and structure of the Program for implementation in FY 2000 and beyond. The Program will provide **Federal Register** notifications on the availability of funds and will solicit project proposals once a year, or more. Each solicitation will provide detail on the criteria for project selection and/or on the weighting of the criteria.

Electronic Access

Information on the Program, including partnerships and projects that have been funded to date, can be found on the world wide web at: http://www.nmfs.gov/habitat/restoration.

Goals and Objectives

The Program's objective is to bring together citizen groups, public and non-profit organizations, industry, corporations and businesses, youth conservation corps, students, landowners, and local government, and state and Federal agencies to implement habitat restoration projects to benefit NOAA trust resources. Partnerships are sought at the national and local level to contribute funding, land, technical assistance, workforce support or other in-kind services to allow citizens to take responsibility for the improvement of locally important living marine resources.

The Program recognizes the significant role that communities play in habitat restoration and protection and acknowledges that habitat restoration is often best supported and implemented at a community level. Projects are successful because they have significant community support and depend upon citizens' ''hands-on'' involvement. The role of NMFS in the Program is to strengthen the development and implementation of sound restoration projects. NMFS anticipates maintaining the current focus of the Program by continuing to form strong national and local partnerships to fund grass-roots, bottom-up activities that restore habitat and develop stewardship and a conservation ethic for the Nation's living marine resources.

Eligibility Requirements

Any state, local or tribal government, regional governmental body, public or private agency or organization may sponsor a project for funding consideration. The sponsoring group or organization may be a recipient of the funds or may recommend that a Federal agency receive the funds for implementation. However, in the latter situation, NMFS would enter into a Memorandum of Agreement among NMFS, the sponsor, and the Federal agency. Federal agencies are not eligible to apply for funding; however, they are encouraged to work in partnership with state agencies, municipalities, and community groups. Successful applicants will be those whose projects demonstrate that significant, direct benefits are expected to NOAA trust resources within supportive, involved communities. Proponents who seek funding under the Program are not eligible to seek funding for the same project under other Restoration Center programs. The Program operates under statutory authority that precludes individuals from applying.

Eligible Restoration Activities

NMFS is interested in funding projects that will result in on-the-ground restoration of habitat to benefit living marine resources, including anadromous fish species. Habitat restoration is defined here as activities that directly result in the reestablishment or re-creation of stable, productive marine, estuarine or coastal river biological systems. Restoration may include, but is not limited to, improvement of coastal wetland tidal exchange or reestablishment of historic hydrology; dam or berm removal; fish passageway improvements; natural or artificial reef/substrate/habitat creation; establishment of riparian buffer zones and improvement of freshwater habitat features that support anadromous fishes; planting of native coastal wetland and submerged aquatic vegetation; and improvements of feeding, spawning, and growth areas essential to fisheries.

In general, proposed projects should clearly demonstrate anticipated benefits to such habitats as salt marshes, seagrass beds, coral reefs, mangrove forests and riparian habitat near rivers, streams and creeks used by anadromous fish. To protect the Federal investment, projects on private lands need to provide assurance that the project will be maintained for its intended purpose for the useful life of the project. Projects on permanently protected lands may be given priority consideration.

Projects must involve significant community support through an educational and/or volunteer component tied to the restoration activities. Implementation of on-the-ground habitat restoration projects must involve community outreach and post-restoration monitoring to assess project success and may involve limited pre-implementation activities, such as engineering and design and short-term baseline studies. Proposals emphasizing only research, outreach, monitoring, or coordination are discouraged, as are funding requests primarily for administration, salaries, overhead, and travel.

Although NMFS recognizes that water quality issues may impact habitat restoration efforts, this initiative is intended to fund physical habitat restoration projects rather than direct water quality improvement measures, such as wastewater treatment plant upgrades or combined sewer outfall corrections. Similarly, the following restoration projects will not be eligible for funding: (1) activities that constitute legally required mitigation for the adverse effects of an activity regulated or otherwise governed by state or Federal law; (2) activities that constitute restoration for natural resource damages under Federal or state law; and (3) activities that are required by a separate consent decree, court order, statute or regulation. Funds from this program may be sought to enhance restoration activities beyond the scope legally required by these activities.

Examples of Previously Funded Projects

The following examples are community-based restoration projects that have been funded with assistance from the Restoration Center. These examples are only illustrative and are not intended to limit the scope of future proposals in any way.

Submerged Aquatic Vegetation Restoration

Funding was provided to evaluate the feasibility of using volunteer divers to restore seagrass. A protocol was developed to train volunteers in water quality monitoring and seagrass transplantation techniques.

Fish Ladder Construction

An impediment to fish passage was corrected through the design and construction of a step-pool fish ladder, which now allows native steelhead trout to reach their historic spawning grounds.

Invasive Plant Removal

Funding was provided to a coalition of volunteer groups called ''Pepperbusters'' who worked to remove exotic Brazilian pepper plants and replant native shoreline vegetation.

Salt Marsh Restoration

Tidal flushing was restored to 20 acres of salt marsh by replacing an undersized culvert to increase the mean high water level in the restricted portion of the marsh.

Oyster Reef Restoration

Funding was provided to increase oyster reef habitat by reconstructing historic reefs and seeding them with hatchery-produced seed oysters grown in floating cages by students.

Kelp Forest Restoration

Funding was provided to train community dive groups in kelp reforestation activities, including the preparation, planting and maintenance of kelp sites, documentation of growth patterns, and changes in marine life attracted to the newly planted kelp areas.

Wetland Plant Nursery

Funding was provided to start an innovative wetland nursery program in local high schools, where science and ecology classes build wetland nurseries on-campus to grow salt marsh grasses for local restoration efforts.

Riparian Habitat Restoration

Funding was provided to train youth corps in the use of biorestoration and stabilization techniques to restore eroding riverbanks and improve habitat for salmon smolt and other fish species.

Anadromous Fish Habitat Restoration

Highly functional salmonid and wildlife habitat was restored with the cooperation of private landowners by opening silted enclosures along a slough to provide refuge for juvenile salmonids during the winter flood flows.

Funding Sources and Dispersal Mechanisms

The Restoration Center envisions funding projects through joint project agreements, cooperative agreements and grants, and intra- and interagency transfers, as appropriate.

The Secretary of Commerce has authority to enter into joint project agreements with non-profit, research, or public organizations on matters of mutual interest, the cost of which is equitably apportioned. The principal purpose of a joint project agreement under this program is to engage in a collaborative and equitably apportioned effort with a qualified organization on matters of mutual interest.

For purposes of this Program, interagency agreements are written documents containing specific provisions of governing authorities, responsibilities, and funding, entered into between NMFS and a reimbursing Federal agency or between another Federal agency and NMFS when NMFS is the funding organization. Such agreements will also require inclusion of a local sponsor of the restoration project.

A cooperative agreement is a legal instrument reflecting a relationship between NMFS and a recipient whenever (1) the principal purpose of the relationship is to provide financial assistance to the recipient and (2) substantial involvement is anticipated between NMFS and the recipient during performance of the contemplated activity. A grant is similar to a cooperative agreement, except that in the case of grants, substantial involvement between NMFS and the recipient is not anticipated during the performance of the contemplated activity. Financial assistance is the transfer of money, property, services or anything of value to a recipient in order to accomplish a public purpose of support or stimulation which is authorized by Federal statute.

The instrument chosen will be based on such factors as degree of direct NOAA involvement with the project beyond the provision of financial assistance, the proportion of funds invested in the project by NOAA and the other organizations, and the efficiency of the different mechanisms to achieve the Program's goals and objectives. NMFS will determine which method is the most appropriate for funding individual projects based on the specific circumstances of each project.

NMFS reserves the right to fund individual projects directly, or through partnership arrangements. The Program will continue to create partnership arrangements at a national or broad-based, geographic or regional level with non-profit and other organizations that have similar goals for improving fisheries habitat. Partnerships are a key element that allows the Restoration Center to significantly leverage the funding available for on-the-ground restoration. Partnerships also encourage the sharing and distribution of technical expertise, often improve relations between diverse organizations with common goals, and allow NOAA to reach larger and more diverse communities that have vested interests in fishery habitat restoration.

The Restoration Center will also function in a clearinghouse capacity to help develop and link high quality proposals for habitat restoration with other potential funding sources whose evaluation criteria contain similar specifications for habitat enhancement. This will provide greater exposure for project ideas that increase the chances for project proponents to secure funding.

Each year, the Restoration Center Director will determine the proportion of the funds available to the Program that will be obligated to national or broad-based, geographic or regional partnerships and the proportion for direct project solicitation. The proportion will be established annually and will depend upon the amount of funds available from partnership organizations for habitat restoration activities that meet the goals and objectives of the Program, including the goal of funding a broad array of projects over a wide geographic distribution.

Funding Ranges

NMFS anticipates that typical project awards will range from $25,000 to $50,000, but NMFS will accept proposals ranging from $5,000 to $200,000. Final awards will be dependent on funding levels appropriated by Congress. Each solicitation issued for the Program will contain suggested ranges for funding requests and any specific criteria, including the weighting of selection criteria that will be used for proposal evaluation. The number of awards to be made in FY 2000 and beyond will depend on the amount of funds appropriated to the Program.

Match and Use of Funds

The focus of the Program is to provide seed money to leverage funds and other contributions from a broad public and private sector to implement locally important habitat restoration to benefit living marine resources. To this end, proposals are required to demonstrate a minimum 1:1 non-Federal match (equitable share, in the case of a joint project) for CRP funds requested to complete the proposed project. The Restoration Center may waive the requirement for 1:1 matching funds if the project meets the following three requirements: (1) The project is judged to be an outstanding match with NMFS and Restoration Center objectives; (2) there is a critical need to carry out the project in a timely fashion in order to benefit NOAA trust resources; and (3) the project sponsor has attempted to obtain matching funds but was unable to come up with the full 1:1 minimum match required. NOAA strongly encourages applicants to leverage as much investment as possible. The degree to which cost-sharing exceeds the minimum level may be taken into account in the final selection of projects to be funded. The match can come from a variety of public and private sources and can include in-kind goods and services. Federal funds may not be considered as matching funds. Applicants are permitted to combine contributions from additional project partners in order to meet the 1:1 required match (equitable share, in the case of a joint project) for the project. Applicants whose proposals are selected for funding will be obligated to account for the amount of cost-share reflected in the proposal and may be asked to provide letters of commitment identifying and precisely specifying match (or equitable share) to confirm stated contributions.

For each proposal accepted for funding, one award will be made. Funds awarded cannot necessarily pay for all the costs which the recipient might incur in the course of carrying out the project. Allowable costs for grants and cooperative agreements are determined by reference to the Office of Management and Budget Circulars A–122, ''Cost Principles for Non-profit Organizations''; A–21, ''Cost Principles for Education Institutions''; and A–87, ''Cost Principles for State, Local and Indian Tribal Governments.'' Generally, costs that are allowable include salaries, equipment, supplies, and training, as long as these are reasonable, allowable, and allocable. However, in order to encourage on-the-ground restoration, if funding for salaries is requested, at least 75 percent of the total salary request must be used to support staff accomplishing the restoration work. Entertainment costs are an example of unallowable costs. Generally, the Program will make awards only to those projects where requested funding will be used to complete proposed restoration activities, with the exception of post-construction monitoring, within a period of 18 months from the time awards are distributed.

Project Selection Process

NOAA will publish, in the **Federal Registe**r, notifications soliciting letters of intent and project proposals once a year or more. Letters of intent submitted in response to these solicitation notices, when required, will be screened for eligibility and conformance with the Program guidelines, and guidance will be provided as to the most suitable funding mechanism that project proponents may pursue for further consideration. Applicants providing full proposals for financial assistance will be asked to follow standard NOAA Grants procedures. Full proposals will be screened to determine whether applicants meet the minimum Program requirements, and eligible restoration projects will undergo a technical review, ranking, and selection process. As appropriate during this process, the NOAA Restoration Center will solicit individual technical evaluations of each project and may consult with other NMFS and NOAA offices, the NOAA Grants Management Division, the U.S. Department of Commerce, the Regional Fishery Management Councils, such other Federal and state agencies as state coastal management agencies and state fish and wildlife agencies, and private and public sector subject experts or other interested parties, such as potential partners who have knowledge of a specific project or its subject matter. Reviews will be consolidated, and recommendations on the merits of funding each project and the level of funding NMFS should award will be presented to the Director of the NOAA Restoration Center for approval. Reviewers will assign scores to proposals ranging from 0 (unacceptable) to 100 (excellent) based on the following four evaluation criteria:

(1) Benefit to NOAA Trust Resources

NMFS is interested in funding projects where benefits to living marine resources can be realized. Therefore, NMFS will evaluate proposals based on the potential of the restoration project to restore, protect, conserve, and create habitats and ecosystems vital to self-sustaining populations of living marine resources under NOAA Fisheries stewardship. Locations where restoration projects may have high potential to benefit NOAA trust resources include areas identified as essential fish habitat (EFH) and areas within EFH identified as Habitat Areas of Particular Concern; areas identified as critical habitat for listed marine and anadromous species; areas identified as important habitat for marine mammals; areas located within National Marine Sanctuaries or National Estuarine Research Reserves; watersheds or other areas under conservation management, such as special management areas under state coastal management programs; and other important commercial or recreational marine fish habitat, including degraded areas that formerly were important habitat for living marine resources.

(2) Technical Merit and Adequacy of Implementation Plan

Proposals will be evaluated on the technical feasibility of the project from both biological and engineering perspectives and on the qualifications and past experience of the project leaders and/or partners. Communities and/or organizations developing their first locally driven restoration project may not be able to document past experience, and, therefore, will be evaluated on the basis of the availability of technical expertise to guide the project to a successful completion. Proposals will also be evaluated on their ability to (a) deliver the restoration objective stated in the proposal; (b) provide educational benefits; (c) incorporate post-restoration monitoring and assessment of project success in terms of meeting the proposed objectives; (d) demonstrate that the restoration activity will be sustainable and long-lasting;(e) provide assurance that implementation of the project will meet all Federal and state environmental laws and Federal consistency requirements by obtaining or proceeding to obtain applicable permits and consultations; and (f) provide mid-term and final project reports, including photo-documentation of the project site and restoration activities.

(3) Community Commitment and Partnership Development

Proposals will be evaluated on how well they describe the depth and breadth of the community's support. Projects must incorporate significant community involvement, which may include the following: (a) Hands-on training and restoration activities undertaken by volunteer students, qualified youth conservation or service corps, or other citizens; (b) input from local entities, such as businesses, conservation organizations, and others, either through in-kind goods and services (earth moving, technical expertise, easements) or cash contributions; (c) visibility within the community and demonstrated potential for public outreach and/or outreach products, including, but not limited to, an educational sign/poster at the project site, compilation of protocols into training manuals, guides, brochures, or videos; (d) cooperation with private landowners that set an example within the community for natural resource conservation; (e) support by state and local governments; (f) representation of those within the community who have an interest in or are affected by the project and seek the benefits of the restoration; (g) ability to achieve long-term stewardship for restored resources and generate a community conservation ethic; and/or (h) ability of a project to demonstrate that it is incorporated into a regional or community planning process or otherwise assure that all residents or citizens affected by the project are provided an opportunity to participate.

(4) Cost-effectiveness and Budget Justification

Projects will be evaluated on (a) their ability to demonstrate that a significant benefit will be generated for the most reasonable cost; (b) their importance to living marine resources under NOAA stewardship; (c) the extent of habitat and degree to which it will be restored; and (d) on their demonstration of partnership and collaboration. Projects will also be ranked in terms of their need for funding and the ability of NMFS to act as a catalyst to implement projects. NMFS will require cost sharing to leverage funding and to encourage partnerships among government, industry, and academia to address the needs of communities to restore important fisheries habitat.

The exact amount of funds awarded to a project and the funding instrument will be determined in pre-award negotiations between the applicant and NOAA/NMFS representatives. The application and reporting requirements will differ depending upon the funding instrument selected. Projects receiving funds under this program will have to meet applicable NOAA/Department of Commerce/Federal policies, requirements, and laws.

2000 Administrative Procedure Act

Prior notice and an opportunity for public comments are not required by the Administrative Procedure Act, (5 U.S.C. sec. 553), because these are agency guidelines. Because NMFS was interested in receiving comments on modifications to the Program that would allow greater flexibility to support community-based habitat restoration projects, NMFS solicited comments in the notice that was published in the **Federal Register** on October 1, 1999. This notice responds to those comments, and announces the final guidelines for the Program.

Statutory Authority

Fish and Wildlife Coordination Act of 1956, 16 U.S.C. 661–667; Joint Project Authority, 15 U.S.C. 1525; and the Economy Act, 31 U.S.C. 1535.

Dated: March 27, 2000.

Penelope D. Dalton,
Assistant Administrator for Fisheries, National Marine Fisheries Service.

[FR Doc. 00–7919 Filed 3–29–00; 8:45 am]

BILLING CODE 3510–22–F